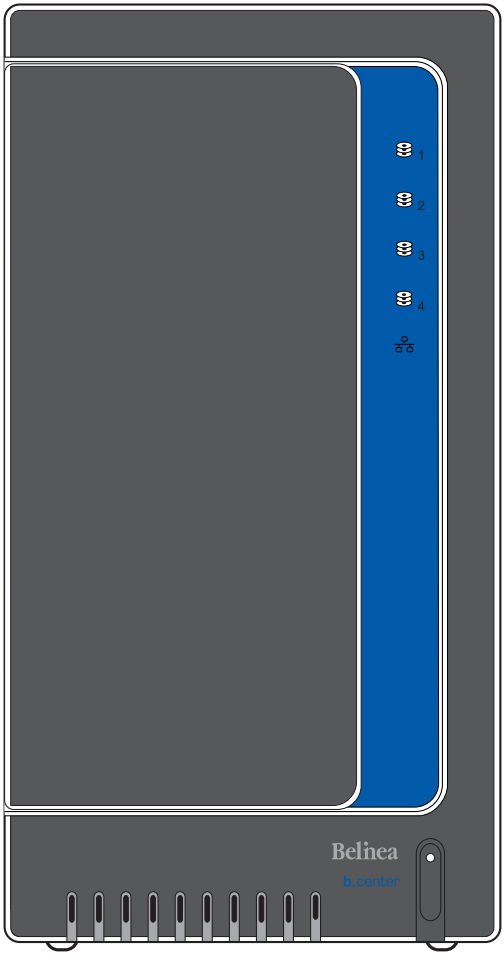
Belinea

b.center



Belinea b.center

Software Manual

bcSUK

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Note

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Before Getting Started

Congratulations on your new Belinea b.center, the ideal solution for network-based storage. This manual will assist you as you setup the software.

In order to quickly reach the desired configuration, please read the following pages thoroughly. The time invested is well spent – after all, you have purchased this solution for your invaluable data.

Content of this package

Before you startup your new Belinea b.center, make sure that the package contains the following items:

- Belinea b.center
- Quick Start Guide
- A CD containing the manual (this document), brochures, images and additional information material
- Source CD

If something is missing, please contact your dealer.

Supported clients

- Microsoft Windows (all versions)
- Linux
- Unix
- Mac OS 8.0, 9.0 and OS X

Supported network protocols

- TCP/IP
- NetBEUI
- SNMP

Supported network file protocols

- SMB / CIFS / Samba
- Apple Talk
- FTP/sFTP

Safety precautions

Personal safety

✎ *Note*

High voltages may occur inside computer equipment. Before removing the enclosure, please turn off the power switch and disconnect the power cords.

Safety for your data

If you intend to install used hard drives into your Belinea b.center, please backup all important data prior to installation. Adding a hard drive to your Belinea b.center goes hand in hand with complete formatting of the hard drive, which can possibly delete existing data.

ESD precautions

In order to avoid damage to your Belinea b.center, please ensure you are grounded before opening it. Using grounding straps or mats is the best way to ensure this safety. If you don't have grounding equipment at hand, please make sure you are grounded before opening your Belinea b.center, for instance by touching a heater.

- Avoid unnecessary touching of the components inside your Belinea b.center.
- Please touch any circuit board or other components inside your Belinea b.center on the edges only.

Features

The b.center software is an all-in-one IP-Storage OS offering NAS and iSCSI (target and initiator) functionality in a single application with excellent enhanced management and superior reliability to organizations of all sizes.

What is the Belinea b.center?

NAS (Network Attached Storage) solutions are defined as storage systems that are directly hooked up to a network infrastructure. Also, they operate independently and do not have to be connected to a server via a controller or host adapter. The term "storage" here generally refers to all systems that either provide data storage or actually store or organize data. Currently, data storage is the most common and most widespread type of NAS systems.

NAS solutions are based on a separate operating system (and often also on special hardware), which operates independently from the servers on a network. Typically, this operating system is software that is optimized for providing data (file server).

NAS solutions allow users to add additional storage to existing networks quickly, easily, and cost-efficiently.

iSCSI (internet SCSI) is a protocol that encapsulates SCSI (Small Computer System Interface) commands and data in TCP/IP packets for linking storage devices with servers over common IP infrastructures. By using iSCSI, you can supply high performance SANs (Storage Area Networks) using standard IP networks like LAN, MAN, WAN or the Internet.

iSCSI solutions are based on a separate operating system and often also on a special hardware. Typically, this operating system allows operating iSCSI technology.

iSCSI solutions allow users to add additional disk devices to existing networks quickly, easily, and cost-efficiently.

iSCSI is a client-server architecture. Clients of an iSCSI interface are called "initiators". Initiators issue iSCSI "commands" to request services from components, logical units, of a server known as a "target". The "device server" on the logical unit accepts iSCSI commands and processes them.

Belinea b.center provides a fast, reliable, and scalable platform for IP Storage and combines the power of NAS & iSCSI in a single operating system. Whether your need is for file sharing, storage consolidation, backup and recovery, virtualization or replication, Belinea b.center offers excellent price-to-performance ratio, enhanced manageability, and increased productivity.
The flexible design of Belinea b.center enables organizations of all sizes to create effective NAS and/or IP-SAN/iSCSI solutions that can adapt to and solve the simplest or most complex storage needs.

Description of the functions

Belinea b.center is one of the easiest ways of implementing a NAS server and/or iSCSI technology in your network. To start working with your Belinea b.center, all you need to do is assign an IP address to the NAS server and/or iSCSI target – either automatically through an existing DHCP server or by assigning it manually. All other settings are handled via a web front-end which can be easily accessed through the IP address of your Belinea b.center using the encrypted HTTPS protocol.

Belinea b.center allows users to create so-called shares (i.e., resources within a network that numerous users or user groups have certain access to). The access rights to these shares are controlled through the user and user group settings.

Belinea b.center allows users of client stations to delegate disk devices and aggregation and form iSCSI Targets and their local mounting from any site in the network.

Why Belinea b.center?

Often, storage in network environments is expanded the following way: File servers have to be shut down in order to install additional drives. In the next step, they need to be reconfigured. In addition, data often has to be copied manually onto larger drives, which consumes a lot of time and money.

With your Belinea b.center, you can:

- Add storage to your existing network quickly, easily, and most important, cost-efficiently.
- Consolidate storage and backups for multiple servers.
- Improve data availability and efficiency.
- Lower costs by centralizing storage management.
- iSCSI also simplifies the installation and on-going management of a SAN as opposed to using Fibre Channel.

To store data, Belinea b.center uses IDE (ATA) and SATA hard drives. Belinea b.center also supports software RAID.

Within a few minutes, you will have up to several hundred gigabytes available on your network – without much effort and any downtime.

RAID types

This manual cannot provide full information on all basics and details about RAIDs. But we want to provide you with an overview of common RAID types so that you can make an informed decision on which type to choose. Depending on whom you ask, RAID means either Redundant Array of Independent Disks or Redundant Array of Inexpensive Disks. Both are correct. In essence, you combine the capacity, speed and security of several disks into one.

RAID 0 forms one large hard disk by concatenating stripes from each member drive. Stripe size is configurable roughly between 64 KB and 1 MB. The result is a lightning-fast RAID, but with no added security. One failing drive may ruin the entire RAID.

RAID 1 mirrors hard drives. By writing identical data onto more than one drive, security is enhanced. A completely defective drive does not cause any loss of data. The drawback is reduced performance and capacity.

RAID 5 combines data striping from RAID 0 with parity checking, therefore combining speed and improved security. The loss of one drive is tolerable.

RAID 6 extends RAID 5 by adding an additional parity block, thus it uses block-level striping with two parity blocks distributed across all member disks. It was not one of the original RAID levels. The usable capacity of a RAID 6 array is N–2, where N is the total number of drives in the array. RAID 6 does not have a performance penalty for read operations, but it does have a performance penalty on write operations due to the overhead associated with the additional parity calculations.

RAID 10 is a combination of RAID 1 and 0, hence the name. Data is written in a striped and mirrored configuration, providing high performance and robust security.

Logging into Belinea b.center

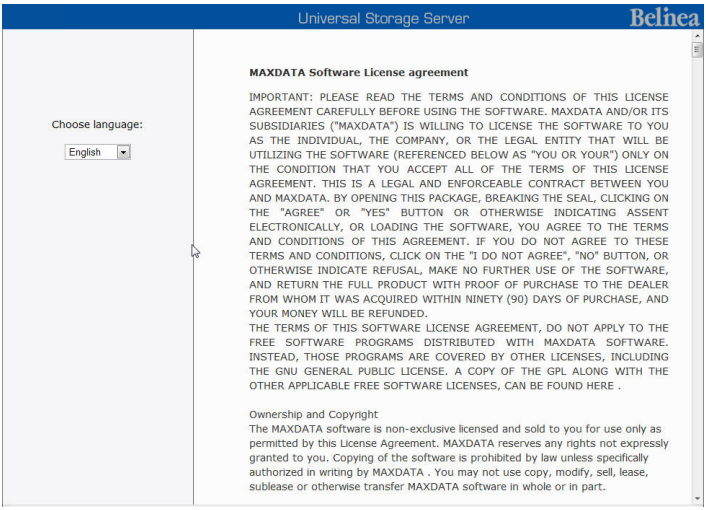
You can establish a connection to your Belinea b.center from any network computer. To establish this connection, use a browser (e.g. Microsoft Internet Explorer) and enter the IP address of your Belinea b.center in the URL entry line: https://192.168.0.220 (standard address).

✎ *Note*

For security reasons, Belinea b.center uses the encrypted SSL protocol (HTTPS).

You will now be asked for verification of the encryption certification. Since Belinea b.center does not allow for creating shares on the Internet but only on the Intranet, there is no need for global certification by an authorized body. You can accept the certificate for the session only, but also for all future use.

Now you have to accept the license in order to use the b.center software and you can choose the language you want to use.


Universal Storage Server
Belinea
Choose language:
English
MAXDATA Software License agreement
IMPORTANT: PLEASE READ THE TERMS AND CONDITIONS OF THIS LICENSE AGREEMENT CAREFULLY BEFORE USING THE SOFTWARE. MAXDATA AND/OR ITS SUBSIDIARIES ("MAXDATA") IS WILLING TO LICENSE THE SOFTWARE TO YOU AS THE INDIVIDUAL, THE COMPANY, OR THE LEGAL ENTITY THAT WILL BE UTILIZING THE SOFTWARE (REFERENCED BELOW AS "YOU OR YOUR") ONLY ON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS OF THIS LICENSE AGREEMENT. THIS IS A LEGAL AND ENFORCEABLE CONTRACT BETWEEN YOU AND MAXDATA. BY OPENING THIS PACKAGE, BREAKING THE SEAL, CLICKING ON THE "AGREE" OR "YES" BUTTON OR OTHERWISE INDICATING ASSENT ELECTRONICALLY, OR LOADING THE SOFTWARE, YOU AGREE TO THE TERMS AND CONDITIONS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, CLICK ON THE "I DO NOT AGREE", "NO" BUTTON, OR OTHERWISE INDICATE REFUSAL, MAKE NO FURTHER USE OF THE SOFTWARE, AND RETURN THE FULL PRODUCT WITH PROOF OF PURCHASE TO THE DEALER FROM WHOM IT WAS ACQUIRED WITHIN NINETY (90) DAYS OF PURCHASE, AND YOUR MONEY WILL BE REFUNDED.
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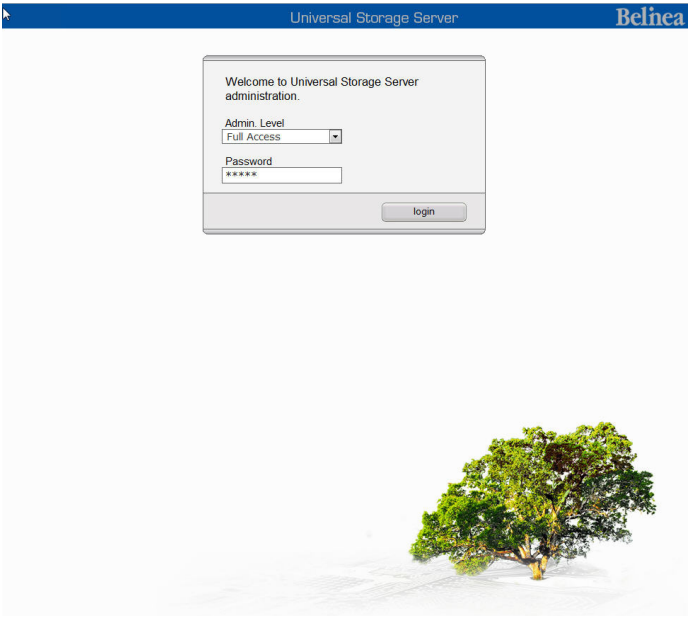
✎ *Note*

The page with the software agreement and available language option will be shown at the first statup of your Belinea b.center. Later you can change the language in the “Language Settings”, which are located in “server” through “setup”.

After accepting the License agreement you can log into your Belinea b.center using the standard password “admin” (this can be changed later). In order to start working, you can now set all parameters.



✎ *Note*

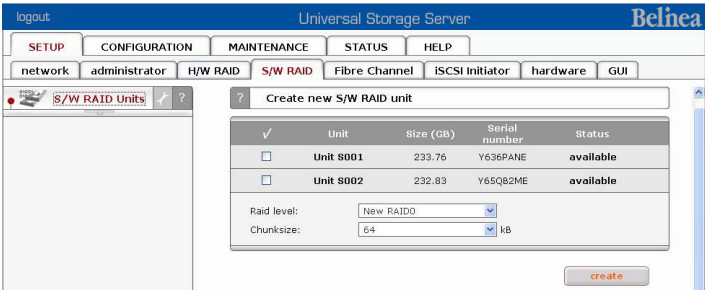
Password checking is case-sensitive. If you cannot log into your Belinea b.center, please check the status of the Shift and Caps Lock keys.

✎ *Note*

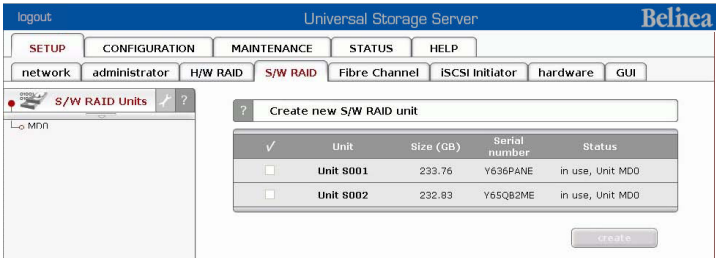
In case your web browser will show something different than expected, please delete the cache & cookies in the settings menu of your web browser.

Creating a disk array

In case you want to use a software RAID, please go to “SETUP” > “SW/RAID” first. You will find the list of available units (hard disks). To create a software RAID, please select units, choose the RAID level and click the “create” button.



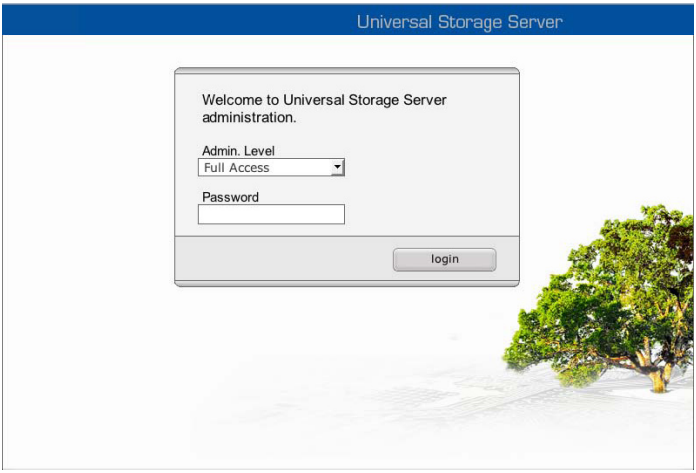
After clicking the “create” button, the status will change to “in use” with additional information describing the kind of disk array (e.g. MD0 is RAID 0)



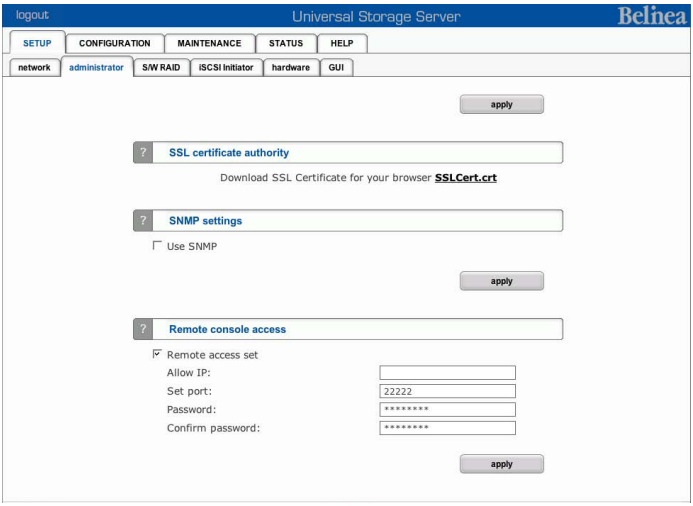
Changing the RAID level

Your Belinea b.center comes with a pre-installed software RAID. In case you want to change the RAID level, please perform the following procedure:

1. Log in to the Web console of your b.center.



2. Activate Remote console access.

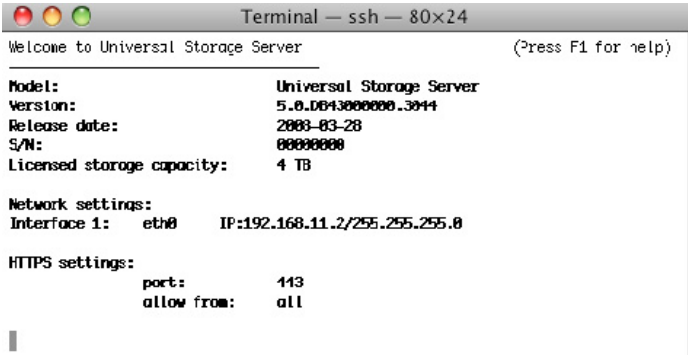


3. Log in to the Remote console via SSH.

   Windows users may want to use the free SSH client "Putty". Mac OS X or Linux users can use the client which comes with their respective operating system by entering "ssh -l cli -p 2222 <ip adress>" on the command line.

   If you are prompted for your credentials, please use "cli" as the user name and the password you assigned previously using the Web console.

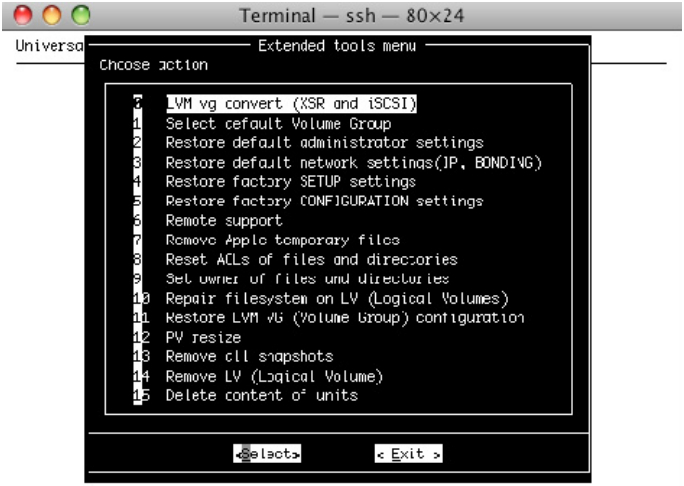
   After logging on, you will see the following screen:



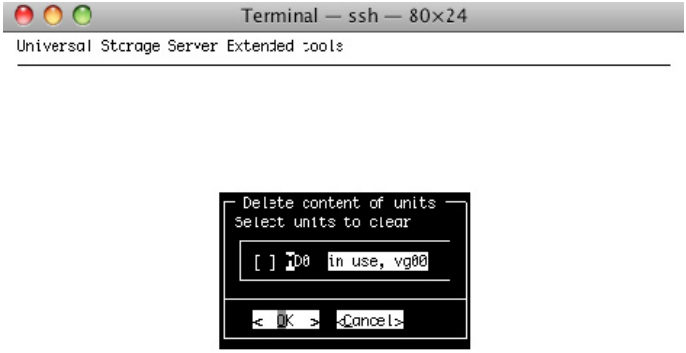
4. Delete any existing volumes/data using the Extended tools.

   a. Press the left CTRL key + the left ALT key + x to display the Extended tools.

   b. Select "15 - Delete content of units" in order to delete the system volumes. (The option "14 - Remove LV (Logical Volume)" will not yield the desired result.)

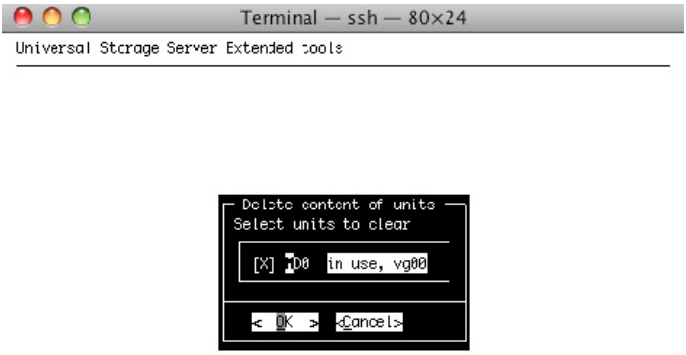

Terminal — ssh — 80×24
Extended tools menu
Choose action
0 LVM vg convert (XSR and iSCSI)
1 Select default Volume Group
2 Restore default administrator settings
3 Restore default network settings(IP, BONDING)
4 Restore factory SETUP settings
5 Restore factory CONFIGURATION settings
6 Remote support
7 Remove Apple temporary files
8 Reset ACLs of files and directories
9 Set owner of files and directories
10 Repair filesystem on LV (Logical Volumes)
11 Restore LVM VG (Volume Group) configuration
12 PV resize
13 Remove all snapshots
14 Remove LV (Logical Volume)
15 Delete content of units
<Select>
< Exit >

c. The current RAID drives will be displayed.

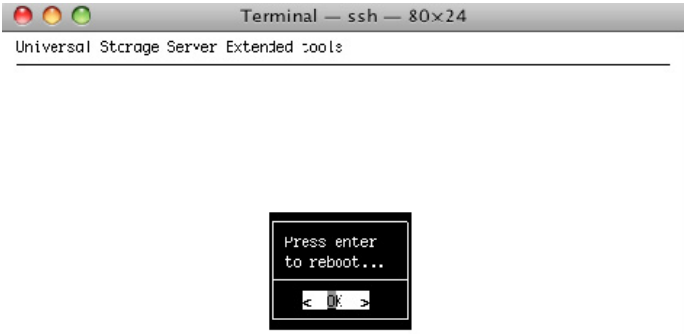

Terminal — ssh — 80×24
Universal Storage Server Extended Tools
Delete content of units
Select units to clear
[ ] MD0 in use, vg00
< OK >
<Cancel>

d. Select the RAID drives you want to delete using the Arrow and Space keys.

e. Once you have selected the correct drives, confirm your selection with the OK button.

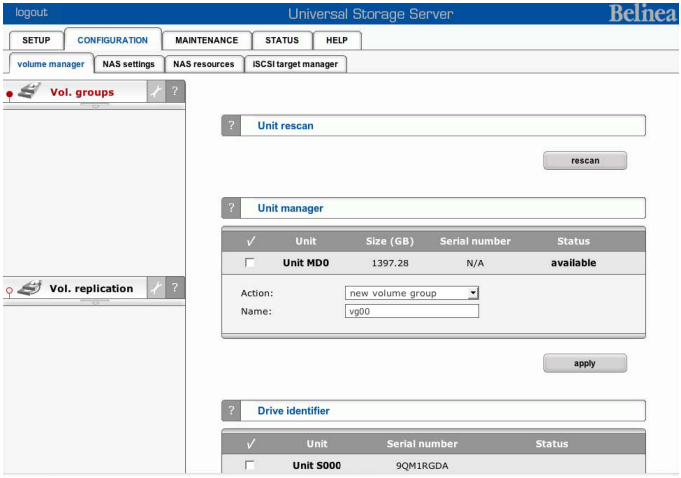

Terminal — ssh — 80×24
Universal Storage Server Extended Tools
Delete content of units
Select units to clear
[X] MD0 in use, vg00
< OK >
<Cancel>

f. After removing the volumes, the system must be restarted in order to remove the outdated information from the memory.

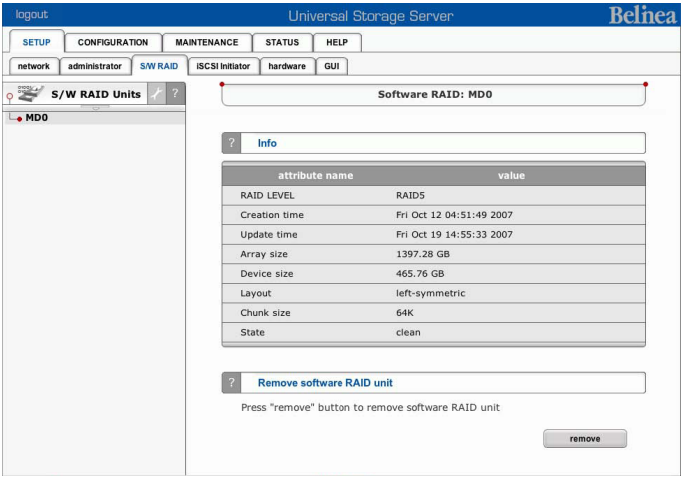


5. Delete the RAID drive.

   After the restart, please log in to the Web console again. If you check the volume manager, no active volume should show up on the RAID drive.



Now you can simply remove the existing software RAID.

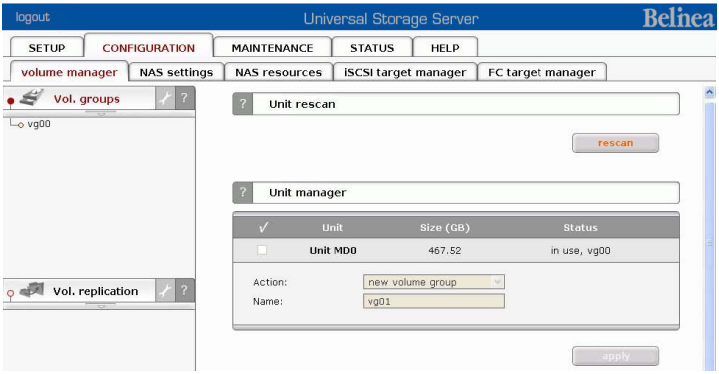


✎ *Note*

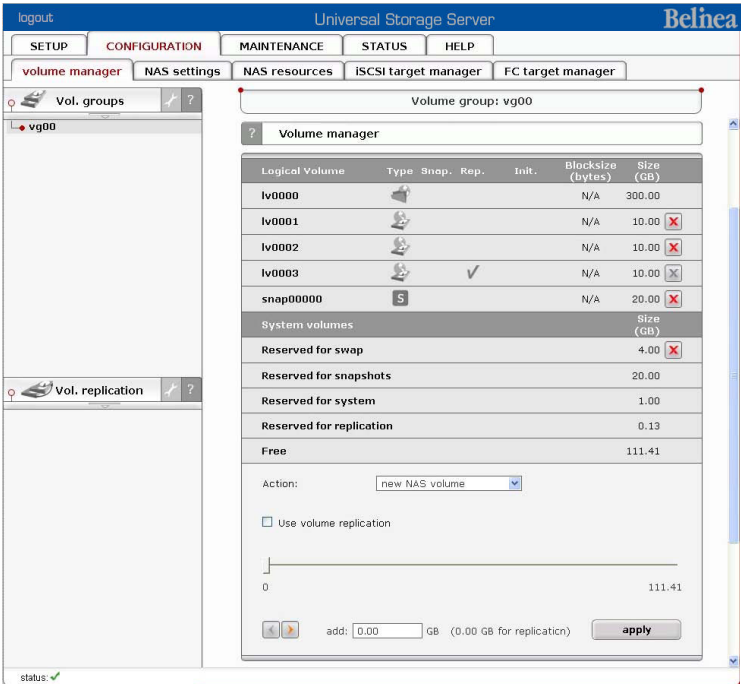
In some rare cases, the system volume cannot be deleted during the first attempt because certain system files might be in use and block the deletion. In such a case, please repeat the procedure. After the first restart, the system files should no longer be blocked and hence the procedure should succeed in the second attempt.

Adding a disk array

- In the menu, please select the "CONFIGURATION" > "volume manager" and "Unit manager" function.
- You will find a list of available drives (units) that can be used.
- While creating a "new volume group", the system adds selected units only. You can use the default volume group name or change it. After creating, the page is reloaded and the "Status" field should display your drives as "in use".



- You can combine two (or more) units into one Volume Group.
- Next, by clicking a volume group name in the the tree diagram, e.g. "vg00", and using the "Volume Manager" function, you can create a new NAS volume and/or new iSCSI volume.
- If you want to use the snapshot feature you should create a snapshot volume.



Next, using the "Volume Manager" function, you can add disk volume to a new LV or increase the size of existing LVs (you can't decrease LV size). To set the needed LV size simply use the scrollbar, next to which the available size is shown on the right. This function can also be used to reserve disk space for swap, snapshots, system and replication.

Creating b.center shares

In the menu, please select "CONFIGURATION" followed by "NAS settings." Here, select the type of authentication. In smaller networks, this should be done via the workgroup name, which has to correspond with the workgroup name of the client PC.

In "CONFIGURATION" > "NAS Resources," select "Shares" in the tree diagram. Now create the first share.

✏ *Note*

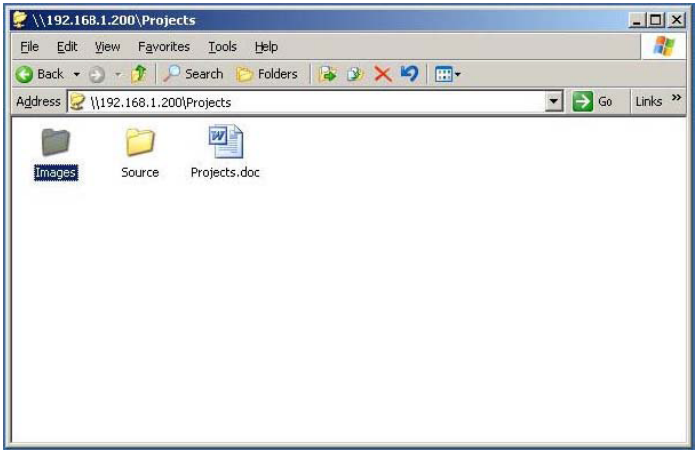
The workgroup/domain name that was configured in your Belinea b.center has to match the settings of your network. Otherwise, the configured shares will not be displayed under "My Network Places".

✏ *Note*

If you made changes to the workgroup and server name in the b.center configuration, it can take some time until each workstation computer in the Windows network detects the new name.

Accessing b.center shares from Windows

The access to newly created shares is generated via the Windows Explorer. After entering the IP address of your Belinea b.center (in this example \\192.168.1.200), all visible shares should be available immediately. Please keep in mind that sometimes it takes a few minutes for the new shares or changes to become accessible.
When accessing invisible shares, you need to know beforehand the corresponding share name and attach it to the IP address with a backslash (\):



The b.center software supports Windows ACL (Access Control List) for read, write and execute options, but based on the POSIX standard written by SGI.

Some examples how to use ACL (with ADS or PDC authentication):

1. Deny access to a directory for every user (group):
   a. Create a new folder or select one of your existing folders (you must be the owner or superuser to set ACL permissions).*
   b. Go to the "directory properties" (right mouse click on the directory then choose "Properties").
   c. Select a the "security" tab.
   d. Choose the group "Everyone".
   e. Click the "Remove" button – only you and your group will have access to the selected directory.**
   f. Click the "Apply" button.

   Now only you have permissions to access this directory.

2. Allow full access for a group named "WORK" to this directory:
   a. Make sure that the group "WORK" exists.
   b. In the security window, click the "Add" button.
   c. Click the "Remove" button (see example 1 above).
   d. Select the group "WORK" ("Advanced" > "Find Now" will display all users and groups) and click OK.
   e. Enable "Full Control" in the "Allow" column.
   f. Click the "Apply" button.

3. Set "read only" permissions to a file for everyone:
   a. Create a new file (you must be the owner or superuser to set permissions).*
   b. Go to the "permissions" window.
   c. Select the "Everyone" group.
   d. Leave only a "read" permission in the "Allow" column.
   e. Click the "Apply" button.
   f. Do the same for your group and yourself.

   Now the group "Everyone" has "read only" permissions to this file.

4. Changing the directory owner:
    a. On the b.center web interface go to "resources" > "shares".
    b. In the "Set Superuser" function select your user and restart connection ("maintenance" > "shutdown" > "Connections reset") or wait about 15 minutes.
    c. Go to the directory/file properties (right click > "properties" on the directory) and click the "security" tab.
    d. Click the "Advanced" button.
    e. Select the "Owner" tab.
    f. Click the "Other Users or Group" button and select the user that will be a new owner ("Advanced" > "Find Now" will show all users and groups), click OK.***
    g. Select the user from the list and click OK and then the "Apply" button.
    h. Click OK and re-open this window to refresh owner.

5. Allow full access for the user "BIG BOSS" to this Directory:
    a. Make sure that the "BIG BOSS" exists.
    b. In the security window click the "Add" button.
    c. Select the user "BIG BOSS" ("Advanced" > "Find Now" will display all users and groups) and click OK.
    d. Enable "Full Control" in the "Allow" column.
    e. Click the "Apply" button.

6. Allow "read" access for a group named "COMPANY" to this directory:
    a. Make sure that the group "COMPANY" exists.
    b. In the security window click the "Add" button.
    c. Select the group "COMPANY" ("Advanced" > "Find Now" will display all users and groups) and click OK.
    d. Enable "Read & Execute" in the "Allow" column.
    e. Click the "Apply" button.

7. Make "read only" directory with full access subdirectories for the group "ALL" (using inherited permissions):

   a. Create a folder "ROOT".

   b. Go to the security window.

   c. Remove both "Everyone" and "Your" group.

   d. Click the "Advanced" button and then the "Add" button.

   e. Select the "ALL" group and click OK.

   f. Change "Apply onto" to "This folder only".

   g. In permissions leave only "Traverse Folder / Execute File" and "List Folder / Read Data". Click OK.

   h. Click the "Add" button again and add the "ALL" group.

   i. This time, select "Apply onto" to "Subfolders and files only" (this step will submit any inherited permissions).

   j. Select "Full Control" and OK.

   k. Click "Apply" to save the permissions.

   With these settings, users from the group "ALL" cannot remove the "ROOT" folder or make any changes to its contents. All new files/folders will be created based on the access given by inherited permissions.

   Examples:

   a. The file /ROOT/some_file.txt can be changed but cannot be removed.

   b. The directory /ROOT/directory can not be removed but users from the group "ALL" can create folders and files in this directory.

   c. The file /ROOT/directory/my_file.txt can by removed and changed by the group "ALL" (if inherited permissions haven't been changed).

8. Inherited permissions

   If the file or directory has inherited permissions, all newly created subfolders will inherit the main folder permissions. All permissions can be changed. Please keep in mind that changing permissions in the main folder will trigger the same changes to the inherited permissions of any subfolder.

9. UNIX Rights in Windows:

Folder permissions

Permissions	**- - x**	**r - -**	**- w -**	**r - x**	**r w -**	**- w x**	**r w x**
Traverse Folder / Execute File	•			•		•	•
List Folder / Read Data		•		•	•		•
Read Attributes	•	•		•	•	•	•
Read Extended Attributes		•		•	•		•
Create Files / Write Data			•		•	•	•
Create Folders / Append Data			•		•	•	•
Write Attributes			•		•	•	•
Write Extended Attributes			•		•	•	•
Delete Subfolders and Files							•
Delete							•
Read Permissions	•	•	•	•	•	•	•
Change Permissions							•
Take Ownership							•

Example application of ACL permission in a small company. The company has 10 users.

Name	**Group**	**Position**	**Rights**
Chris	Firma	Director	All rights for everything
Robert	Firma	Manager	All rights for everything besides Director's home directory
Jennifer	Firma	Secretary	Read access to “DOCUMENTS” directory
Clint	Firma Developers	Main Developer	Read and write to “DEVELOPERS” directory Read and write to “CHANGES” directory
Brad	Firma Developers	Developer	Read in “DEVELOPERS” Read and write in “CHANGES”
Johnny	Firma Developers	Developer	Read in “DEVELOPERS” Read and write in “CHANGES”
Tom	Firma Developers	Developer	Read in “DEVELOPERS” Read and write in “CHANGES”
John	Firma Graphics	Graphic Designer	Read in “GRAPHICS” Read and write in “CHANGES”
Ben	Firma Graphics	Graphic Designer	Read in “GRAPHICS” Read and write in “CHANGES”
Bill	Firma	Cleaner	Only access to his home directory

First create users and groups in your domain:

a. On your Windows domain server, click "Start" > "Programs" > "Administrative Tools" > "Active Directory Users and Computers".

b. Right mouse click on your domain name and select "New" > "User".

c. Enter all necessary fields to create user Chris.

d. Create all users (see steps b and c above).

e. Right mouse click on your domain name and select "New" > "Group".

f. Create groups: Developers, Graphics, and Company.

g. Add users to groups: Right mouse click on group Developers. In Members tab click "Add". Add the relevant users to this group and continue accordingly for the other groups (Company, Developers, Graphics).

Connection to Windows domain:

a. Go to the b.center web interface "CONFIGURATION" > "NAS settings".

b. Select ADS or PDC (depending on your system – if you have an NT4 Domain or Windows 2003 (with no Kerberos**** fix) then select PDC, else select ADS).

c. Enter your domain name – in PDC this will be the IP number; in ADS enter the full domain name (example. COMPANY.COM.DE).

d. Enter your domain/Kerberos server IP.

e. Enter the name and password of an existing Administrator user account on your domain.

f. Click the "Apply" button to join the domain.

Creation of shares and set permissions:

a. Create a Company share (b.center web interface > "CONFIGURATION" > "NAS Resources" > "Shares").

b. Set permissions for all or select only Company group.

c. Go to share \\YOUR_NAS_SERVER_NAME\\Company

d. Create folders "WORK", "HOME" and "FORALL"

e. Set permissions for the WORK folder: Right mouse click > "properties" > "security".

f. Deny access for everyone (cf. example 1 above), change the owner to user Chris (cf. example 4) with full access and add Robert with full access.

g. In the WORK folder create DEVELOPER, GRAPHIC, DOCUMENTS and CHANGES folders.

h. Change the owner of the DEVELOPER directory to Clint (with full rights). Add the Developers group with "read only" access.

i. Add the Graphics group with full access to the GRAPHIC directory.

j. Change the owner of the CHANGES directory to Clint (with full rights). Add the Graphics and Developers groups with full rights.

k. Add the Secretary user to the DOCUMENTS directory with "read only" access.

l. In the home directory, create one private directory for each user, change user (make sure that the owner and the directory name are the same). Remove access for the Company group (cf. example 1).

m. Add the Company group with full access to the FOR ALL directory.

*If you use the SUPERUSER all files and directories will be created as a local ROOT user.

**New directories with no inherited permissions do not have ACL permissions at the beginning. Instead, they have only standard UNIX permissions 0777 (Windows 2003 shows every special permission in normal view in the security window. Windows 2000 does not show any permission in normal view; to display permissions, advanced view must be used). To enable ACL for this directory, first select "Full Access" for everyone and click the "Apply" button. Subsequently do the same for your group and your user. Subdirectories created in this directory should have ACL permissions inherited from the parent. If permissions are inherited then the "ALLOW" column is grey. To disable permission just use the "Deny" column.
If you change ACL permissions always check that a new set of permissions for one group does not interfere with permissions for the other user/groups or any connections between these accounts. Windows 2003 handles such changes much better than Windows 2000.

***This function is available in Windows 2003. In other Windows versions only your user can be selected.

****Kerberos is a server for distributing security keys. Normally it is on the domain server but it can be on some external server. In Windows 2003, this server ignores specified key types, and authorization works only when entering IP (not the name of your b.center).

Accessing b.center shares from Linux

Please use the following line to mount an NFS share:

- mount -t nfs 192.168.0.220: /share/share_name /local_mount_point
  where 192.168.0.220 is the b.center IP

Please use the following line to mount an SMB share:

In a shell:

- mount -t smbfs -o username=root,password=12345 //192.168.0.220/test /mnt-smb
  where "test" is the share name

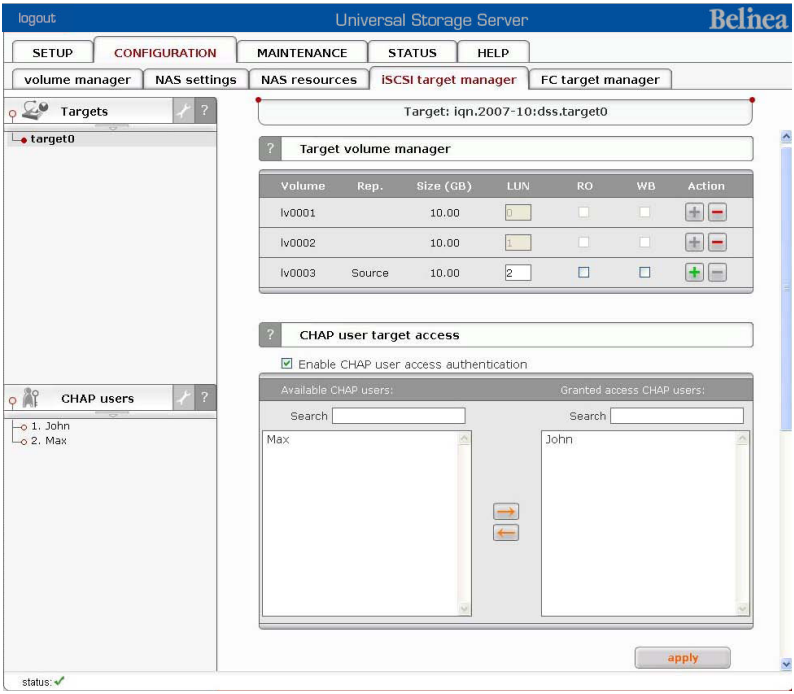
In X-windows:

- Smb://root@192.168.0.220/

Creating a Belinea b.center iSCSI targets volume

After creating an iSCSI volume (see "Adding Disk Array" above) , please choose "CONFIGURATION" > "iSCSI target manager". In "Create new target", click the "apply" button to create a new iSCSI target.

Next, in the "Targets" diagram, click the previously created target name, e.g. "target0", and in "Target volume manager" click the "add" button next to the desired logical volume.



In the "Target Volume Manager" function, you can add "targets volumes" only in the premises of one vg0.

✏ *Note*

Please create as many logical volumes as separate iSCSI volumes (LUNs) are required.

If you create 5 logical volumes, you may create one target with 5 LUNs, or 5 targets with 1 LUN each, or 2 targets, where i.e. 3 LUNs belong to the first target and the other 2 LUNs belong to the second target.

By clicking "CHAP users" on the branch, you can manage the name and secure access to "logical volume" by providing a CHAP user name and password (password must consist of 12 to 16 characters if you use Microsoft iSCSI Initiator).

Configuring user workstations

For iSCSI technology to work correctly on end-user computers, you need to install iSCSI Initiator software (if it is not provided with the operating system). For Microsoft Windows 2000/XP/2003 systems, it is an option and the Microsoft iSCSI Initiator is available for download from the Internet.

Correct software configuration depends on installing individual "target volumes" by adding drive letters to the system (in Windows XP and 2003) or as subfolders as in UNIX systems. All these functions are available in Windows via "Administrative Tools" > "Disk management".

How to connect iSCSI in Windows 2000/XP/2003:

a. First, you have to install the iSCSI Initiator package. You must be logged in as administrator to install the Microsoft iSCSI Software Initiator package.

b. Next, launch iSCSI Initiator software.

c. If you set passwords on iSCSI and Target Access, on branch "General", click "Secret", enter your passwords, and after entering each, click the "OK" button (your passwords are "Target secret").

d. In the "Discovery" branch, click the "Add" button, then enter your b.center IP address.

e. Next click the "Advanced…" button and highlight "CHAP logon information". Provide User name and Target secret and then click the "OK" button twice.

f. In the "Targets" branch you will see the names of the available iSCSI targets, e.g. "iqn.2006.10:belinea.target0".

g. Click the "Log On" button. If you entered a password, you will have to proceed as in step "e". Click the "OK" button. The status of the chosen target will change to "Connected".

h. Next choose "Settings" > "Control Panel" > "Administrative Tools" > "Computer Management" > "Disk Management".

i. Now all available iSCSI TARGET drives will be displayed. In order to use them, you will need to format them and mount them by adding a drive letter.

✎ *Note*

Microsoft iSCSI Initiator ver. 2.02 does not support dynamic disks. The target password must consist of minimum 12 and maximum 16 alphanumeric characters. Please read the Manual and Release Notes of Microsoft iSCSI Initiator for more details, which you can also find on the Microsoft website.

✎ *Note*

Please make sure that the time settings on your Belinea b.center iSCSI target and client stations are the same. Time can be synchronized in the web interface under "SETUP" > "hardware" > "Set time".

Functions of the console display

While your Belinea b.center can be fully administered remotely through a secure web interface, some of the functions can only be accessed on the console. Belinea b.center constantly displays the following basic parameters:

- IP address
- HTTPS settings

CTRL+ALT+n
If you press the left CTRL key + the left ALT key + n, you will be asked for the new IP address and the subnet mask. The DHCP server will shut down.

CTRL+ALT+p
If you press the left CTRL key + the left ALT key + p, the access restrictions are removed after entering the administrator password (in addition, there is a reset to the standard HTTPS port 443).

CTRL+ALT+i
By pressing the left CTRL key + the left ALT key + i, you can reset the original IP address (192.168.0.220) and BONDING. In this process, the DHCP server support is turned off.

CTRL+ALT+t
By pressing the left CTRL key + the left ALT key + t, you can run the Console Tools. The menu will appear, where you can choose from the following functions: Ping, DHCP Ping, Hardware info, Memory info, Time configuration, Language settings, Modify driver options, Console lock/unlock and Boot options.

CTRL+ALT+x
Pressing the left CTRL key + the left ALT key + x will display extended tools.

CTRL+ALT+w
Pressing the left CTRL key + the left ALT key + w will display the hardware configuration.

CTRL+ALT+r
Pressing the left CTRL key + the left ALT key + r will run RAID Tools.

CTRL+ALT+h
Pressing the left CTRL key + the left ALT key + h will display hardware and driver information.

F1, F2 and F5
Function key F1 is available to display help information while F5 will reset the console display to default. If you press F2 key all network interfaces will be displayed.

Shutting down and restarting

With Ctrl + ALT + DEL, your Belinea b.center will shut down and restart, while CTRL + ALT + S will shut it down. Please be careful with this option when users are connected.

Belinea b.center functions via browser access

On the following pages, we will thoroughly describe every function of your Belinea b.center software. The functions are divided by menu options, which are located at the top part of the screen.

SETUP

In this place you can manage network interfaces, administrator settings, create disk arrays using software RAID, iSCSI initiator, hardware and GUI settings.

Network

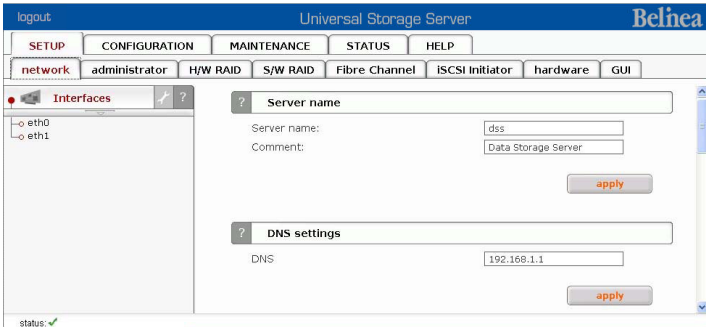
Here you can find a tree containing network interfaces. Click on an interface name to see more information about the selected interface.

Function: Server name

Please enter a server name to clearly identify your server.
In the field "Comment," please enter a short description of your server.

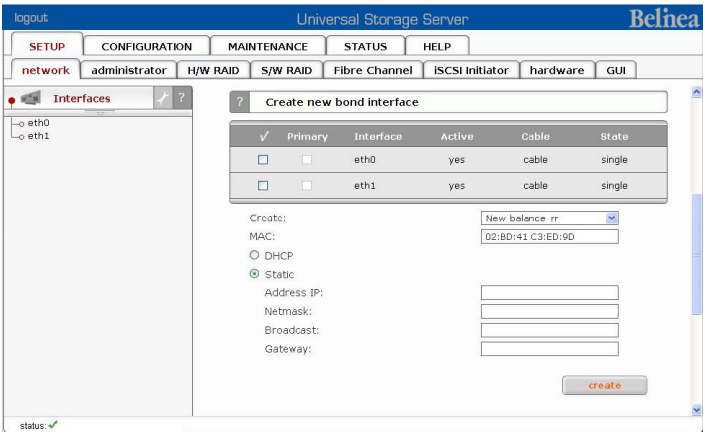
Server Name and Comment rules:

- Please make sure the server name is unique in your network.
- Select a server name that clearly identifies your new server.
- Please do not use spaces and special characters like: ~!@#$^&()+ [ ]{}*;:'".,%|<>?/\=`_
- The server name cannot consist of digits only.
- The comment is not displayed in some systems.



Function: DNS settings

Here you can enter DNS addresses. Please use semicolons to separate addresses.



Function: Create new bond interface

Bonding allows for load-balancing or fail-over for incoming and outgoing connections. Here you can create or edit a bond network interface.

In order to create a bond interface:

- Select the network interfaces which shall be used for the new bond interface.
- Select the desired bonding mode from the "Create" drop-down menu.
- Select dynamic (DHCP) or static configuration for the network interface.
- If you want to dynamically get DNS address, select "get DNS".
- If using static configuration for the network interface, enter IP address, netmask, broadcast and gateway.
- Click the "Create" button. The new bond interface will be created now.

Note

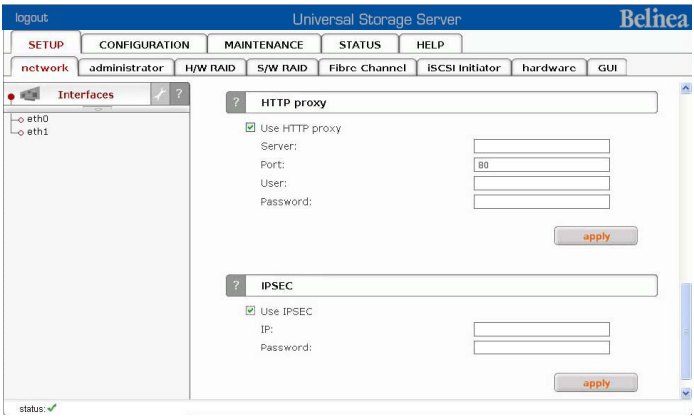
In order to take advantage of bonding, more than one Ethernet NIC must be available on the server.
Please note that the MAC address must have a 02 prefix, for example: 02:xx:yy:zz:vv:nn

Each network interface is described by the following fields:

- Primary
  A string (eth0, eth2, etc.) specifying which slave is the primary device. The specified device will always be the active slave while it is available. Only when the primary is off-line, the alternate devices will be used. This is useful when one slave is preferred over another, e.g., when one slave has higher throughput than another. The primary option is only valid for active-backup mode.
- Interface
  Network interface name.
- Cable
  Shows if a cable is connected to the NIC.
- State
  Describes the state of the network interface. A NIC can be in bonding state or single.

Bonding modes:

- balance-rr
  Transmissions are received and sent out sequentially on each bonded slave interface. This mode provides fault tolerance and load balancing.
- active-backup
  Only one slave in the bond is active. Another bonded slave interface is only used if the active bonded slave interface fails. This mode provides fault tolerance.
- balance-xor
  Transmit based on [(source MAC address XOR'd with destination MAC address) modulo slave count]. This selects the same slave for each destination MAC address. This mode provides load balancing and fault tolerance.
- broadcast
  Transmits everything on all slave interfaces. This mode provides fault tolerance.
- 802.3ad
  IEEE 802.3ad Dynamic link aggregation. Creates aggregation groups that share the same speed and duplex settings. Utilizes all slaves in the active aggregator according to the 802.3ad specification. Requires a switch that supports IEEE 802.3ad Dynamic link aggregation.
- balance-tlb
  Channel bonding that does not require any special switch support. The outgoing traffic is distributed according to the current load (computed relative to the speed) on each slave. Incoming traffic is received by the current slave. If the receiving slave fails, another slave takes over the MAC address of the failed receiving slave. This mode provides fault tolerance and load balancing.



Function: HTTP proxy

With this function you can enable or disable a HTTP proxy.

To enable a HTTP proxy:

- Select "Use HTTP proxy".
- Enter server name, port, user and password.
- Click the "apply" button.

Note

The proxy server name should not contain the http:// prefix, port and password. The proper example for a proxy server name is: www.server.com.

Function: IPSEC

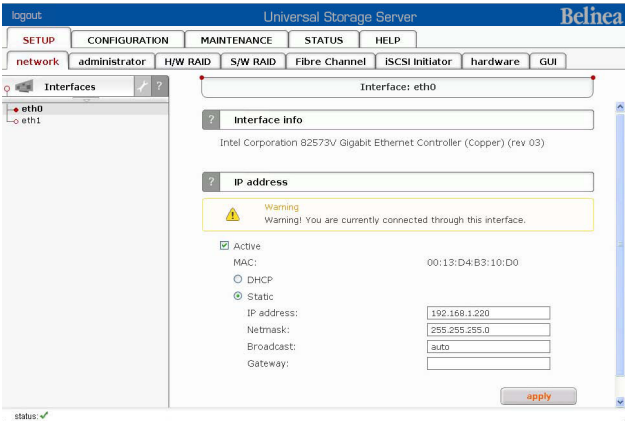
IPSEC provides strong authentication and encryption for the connections. It provides high security against eavesdropping or forging of the transmitted data.

The Password cannot:

- contain spaces,
- be empty,
- contain ' " `

Note

Encrypted data transmission imposes considerable overhead and depending on the amount data transmitted can impact the performance significantly.



Function: Interface Info
Here you can find information on the selected interface (NIC).

Function: IP address
Here you can set TCP/IP parameters for the selected NIC.

Activate
You can activate or deactivate the network interface by setting this checkbox.

DHCP / Static
You can use static or dynamic (DHCP) network interface configuration.

Get DNS
If you want to dynamically get the DNS address, select "get DNS".

If using static configuration for the network interface, enter:

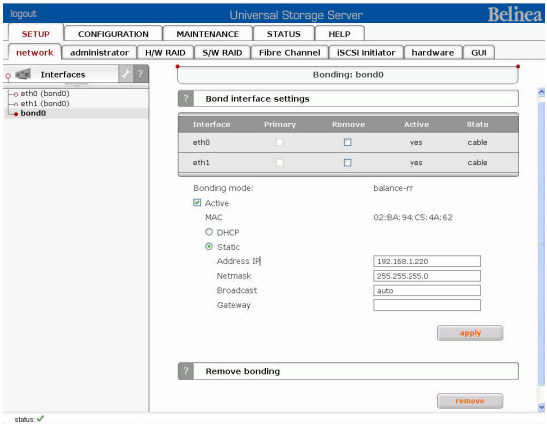
- IP address,
- Netmask,
- Broadcast,
- Gateway.

If you change the IP address you will lose your connection to the server during activation and you will have to log in again. In the URL entry line of your browser, please enter the new IP address.
If you do not get access, please try the console to set the new IP address. In order to access servers in another subnet, you need to enter the address of a router as gateway.

✎ *Note*

In case you use an NTP server to maintain proper time & date, please make sure you have proper Gateway and DNS settings.

If you created a bond interface, a new branch "bond0" will appear on the left pane. By clicking the branch "bond0" you can change the bond's settings or remove it (see below).



Function: Bond interface settings

Here you can edit a bonding network interface.
To remove a network interface from a bonding select it in the column "Remove" and click the "apply" button. Bonding can be deactivated by switching off the "Active" option. You can also change the network configuration for the bonding interface by selecting a static or dynamic (DHCP) address.
Each network interface that belongs to the bonding interface is described by the following fields:

Primary:
A string (eth0, eth2, etc) specifying which slave is the primary device. The specified device will always be the active slave while it is available. Only when the primary is off-line, the alternate devices will be used. This is useful if one slave is preferred over another, e.g., if one slave has higher throughput than another. The primary option is only valid for active-backup mode.

Interface:
Network interface name.

State:
Shows if NIC is connected.

Function: Remove bonding

Here you can remove a bonding interface.

Administrator

Function: Administrator access

Use this function to restrict access to the server administration.

Set port
You can change the HTTPS port (default 443).

IP address
You can assign IP addresses (separated by a semicolon) that are allowed to access the server's web interface for administration. This field left blank means no restriction.

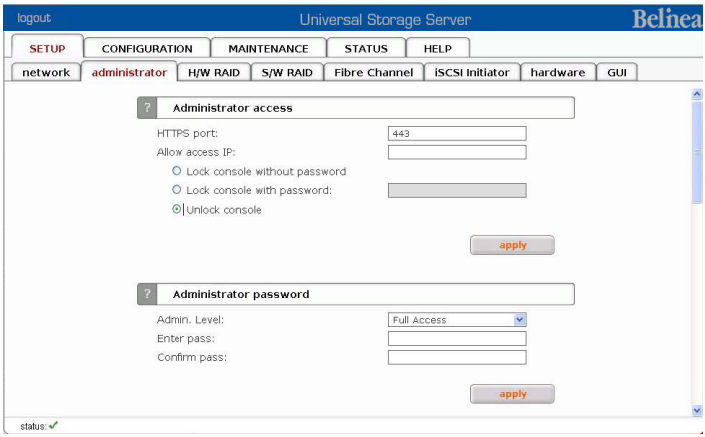
Lock console without password
Disables access to the console.

Lock console with password
To get access to the console you need to type a password. Note that this password should be exactly 8 characters long and include only 1–4 digits.

Unlock console
Unrestricted access to the console.

Note

Please use the IP address feature with caution if the computers in the network receive their IP addresses via DHCP: The current IP may change after the lease ends.
Please use the Lock console feature with caution: You will not be able to reset default administrator access from the console in case of any mistake in setting the IP address.
In case you need to restore the default settings, please refer to the manual.



Function: Administrator password
Using this function, you can change the passwords of the server administration accounts.

Enter password
Please enter your new password.

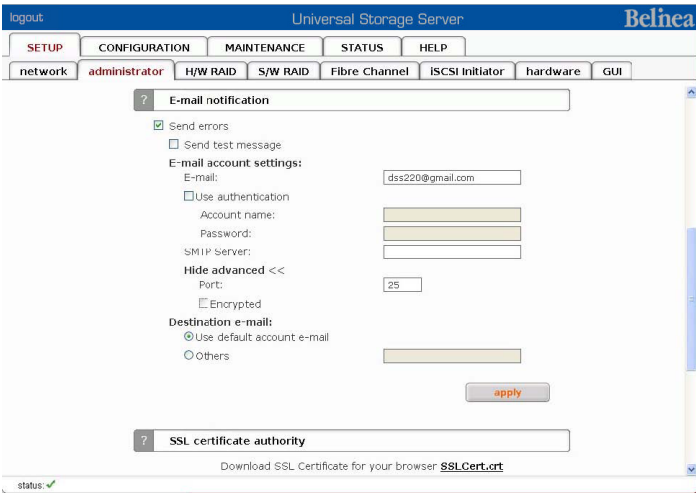
Confirm password
Please retype your new password.

Password cannot contain:

- the follwing characters: ' " `,
- spaces.

The default password for each account is "admin".

✎ *Note*
Password-checking is case-sensitive. For security reasons, the password you enter will not be displayed. Please check the status of the Shift and Shift Lock keys.



Function: E-mail notification

The server can send an e-mail notification to the administrator in case of significant events, critical errors, warnings, etc. To enable this feature check "Send errors".

E-mail
E-mail address from which notifications will be send.

Account name
Account name for e-mail from which notifications will be sent.

Password
Password for account name provided above.

SMTP server
SMTP server name.

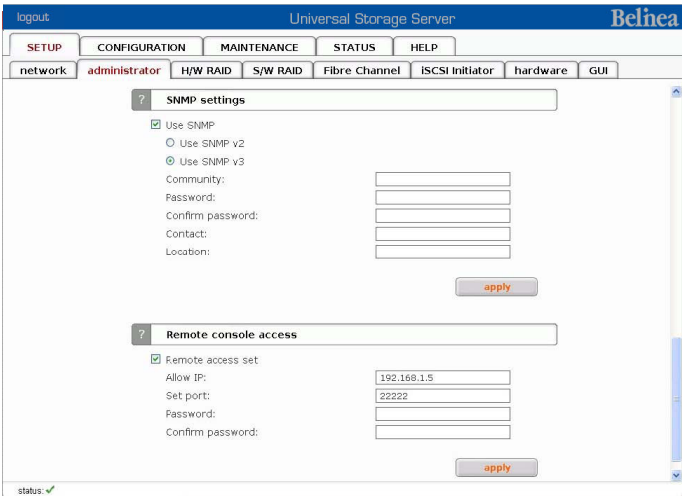
Destination e-mail
Administrator e-mail address to which notifications will be sent.

Port
Port number for SMTP server.

If you want to send a test message, please check the "Send test message" option.
If you want to have e-mail notifications encrypted, check the "Encrypted" option.

Function: SSL certificate authority

To ensure the identity of the web administration tool by letting your web browser automatically check it whenever you connect for administration tasks, click the SSLCert.crt link to download and install the certificate into the certificate management system of your browser.



Function: SNMP settings

You can enable access over the SNMP protocol version 2 or 3.

With SNMP you can get a lot of information (usage of CPU, system load, memory info, ethernet traffic, running processes).
System location and system contact are only for your information, for example when you connect from an SNMP client, you will see your server's location and name.

SNMP in version 3 has encrypted transmission and authentication by community and password.
SNMP in version 2 does not have encrypted transmission and authentication is only by community.

The community you are setting can be max up to 20 characters and password min 8 characters.

Links to SNMP clients:

- http://www.muonics.com
- http://www.mg-soft.com
- http://www.adventnet.com

Function: Remote console access
Using this function, you can manage console tools remotely by ssh protocol (secure shell). Default user is 'cli' and you cannot change it, but password can be changed.

Allow IP
You can assign IP addresses (separated by a semicolon) that are allowed to access the server remotely. This field left blank means no restriction.

Set port
Default port is 22222 for security reasons, because high ports are invisible for port scanners. You can change it to any port between 1024 and 65535 except for ports that are in use.

Password
Minimum length of password is 8 characters. Be sure to use strong passwords.

Confirm password
Please retype your new password.

The password cannot contain:

- the following characters: ' " ` ^ & $ # [ ] \ / | *
- spaces.

To connect to the server from Linux/MacOSX systems use:

```
ssh -2 -p 22222 -l cli address_ip
```

where:

- option: -2 is a version of ssh protocol used for connection.
- option: -p is a port for Remote Access.
- option: -l is a user (in our product the user must be “cli”).
- option: address_ip is the address of the server you want to connect to.

You will be asked for the password you entered on the server for Remote Access.

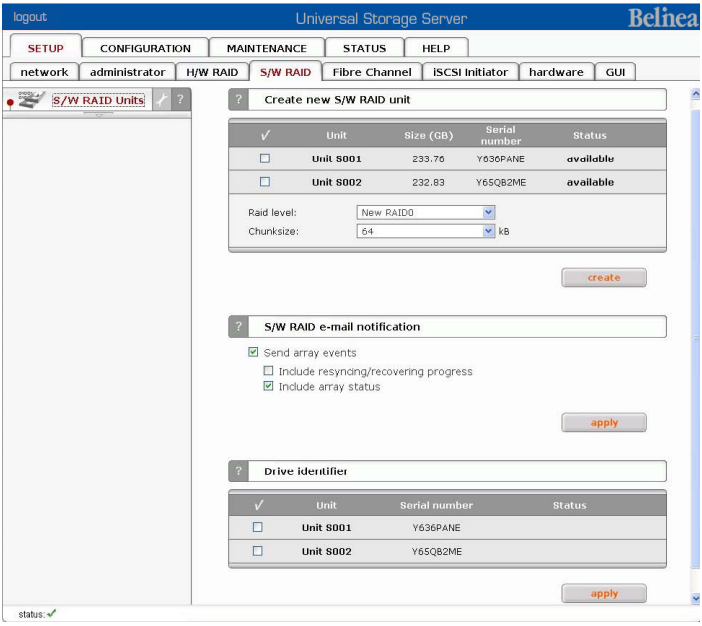
To connect to the server from Microsoft Windows, download the free ssh client Putty (www.putty.nl). Please follow the step-by-step instructions below in order to configure the putty client:

- In Host Name (or IP address) field please enter the IP address of the server.
- In Port field please enter the same port as in the server GUI (default 22222).
- In Protocol please choose SSH.
- In Category: Connection -> Data -> Auto-login-username please enter: "cli".
- In Terminal -> Keyboard -> The Function Keys and keypad please select "VT100+".
- Go back to Category Session, enter the session name in the field Saved Sessions and click the "Save" button.
- Then click the new saved session, click "Open" and enter the "password". (In case you did not enter the Auto-login-username, you will be prompted for username; please enter: "cli").

S/W RAID

Function: Create new S/W RAID unit

Using this function you can create software RAIDs from free (not used) units. If you want to create RAIDs from used units, you need to delete the content of those units in the console first. Be aware that this would ERASE all data from those units.



To create a RAID, select the units to be used, then select the desired type of RAID from the listbox and finally select the desired Chunk size. After setting all parameters click the Create button.

Allow to create degraded mode
This option allows to create a RAID1 with one unit, RAID5 with two units or RAID6 with three units, even if the minimal number of units is not met.

✎ *Note*
Chunk size: Minimal portion of data that is written at a time.

Available RAIDs:

RAID 0: Stripe array; requires [minimum] 2 units. In RAID 0 you can set the Chunksize 4k ÷ 256k. The destination size of the RAID array will be the sum of all drives in the array.

RAID 1: Mirror array; requires 2 units. The destination size of the RAID array will be: (SINGLE) UNIT_SIZE, where (SINGLE) UNIT_SIZE is the size of the smallest unit in the array.

RAID 5: Stripe + parity algorithm array; requires [minimum] 3 units with equal capacity. You can choose from the listboxes: (layout) parity-algorithm [left/right] [symmetric/asymmetric]. The destination size of the RAID array will be: (NR_OF_UNITS-1)*(SINGLE)UNIT_SIZE, where (SINGLE) UNIT_SIZE is the size of the smallest unit in the array.
The (layout) parity-algorithm in RAID 5 is described below.

RAID 5 (layout) parity-algorithm
You can set one out of four algorithms for the placement of data blocks and parity blocks in the matrix. Our default option is left-symmetric, which is the best for large reads. Other recommended value is left-asymmetric.

✎ *Note*
Software RAID 5 is not a good choice for writing a large number of very small files!

Left-Asymmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
0	1	2	Parity
3	4	Parity	5
6	Parity	7	8
Parity	9	10	11
12	13	14	Parity

Right-Asymmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
Parity	0	1	2
3	Parity	4	5
6	7	Parity	8
9	10	11	Parity
Parity	12	13	14

Left-Symmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
0	1	2	Parity
4	5	Parity	3
8	Parity	6	7
Parity	9	10	11
12	13	14	Parity

Right-Symmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
Parity	0	1	2
5	Parity	3	4
7	8	Parity	6
9	10	11	Parity
Parity	12	13	14

RAID6: Stripe + parity algorithm array; requires minimum 4 units with equal capacity. You can choose from the listboxes: (layout)parity-algorithm [left/right] [symmetric/asymmetric].
The destination size of the RAID array will be: (NR_OF_UNITS-2)*(SINGLE) UNIT_SIZE, where (SINGLE) UNIT_SIZE is the size of the smallest unit in the array.
The (layout) parity-algorithm in RAID 6 is described below.

RAID 6 (layout) parity-algorithm
You can set one out of four algorithms for the placement of data blocks and parity blocks in the matrix. Our default option is left-symmetric which is the best for large reads. Other recommended value is left-asymmetric.

Left-Asymmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
0	1	Parity	Parity
2	Parity	Parity	3
Parity	Parity	4	5
Parity	6	7	Parity
8	9	Parity	Parity

Right-Asymmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
Parity	Parity	0	1
2	Parity	Parity	3
4	5	Parity	Parity
Parity	6	7	Parity
Parity	Parity	8	9

Left-Symmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
0	1	Parity	Parity
3	Parity	Parity	2
Parity	Parity	4	5
Parity	6	7	Parity
8	9	Parity	Parity

Right-Symmetric Algorithm

Unit S0	Unit S1	Unit S2	Unit S3
Parity	Parity	0	1
3	Parity	Parity	2
4	5	Parity	Parity
Parity	6	7	Parity
Parity	Parity	8	9

To remove a RAID: If previously added to a Volume Group please enter console Extended tools (press F1 on console to find out keyboard shortcuts) and delete the Volume Group of the RAID (Delete content of units function in Extended tools menu). Then the Remove button will be enabled. Otherwise simply click the Remove button.

✎ *Note*
You can add spare units to RAID1, RAID5 and RAID6 arrays. Note that after creation of an RAID, the synchronization progress will be shown in the "Info" function. Until this process is finished, all actions performed on this array will be slowed down a bit.

✎ *Tip*
If LUNs (under iSCSI) come from the same target, then it is not recommended to create S/W RAIDs on these Units, because this would slow down the system. If LUNs come from two different targets, then you can create S/W RAIDs without a problem.

Function: S/W RAID e-mail notification
It is possible to send e-mail notifications about events on software RAID arrays (e.g. rebuild started, rebuild finished, span is active). In order to do so please check Send array events.

✎ *Note*
In order to Send array events you must enable "E-mail notification" in "setup" > "administrator".

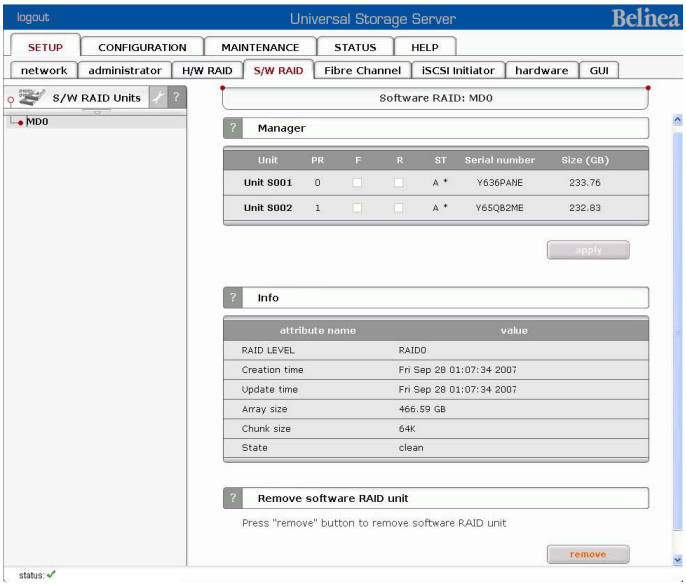
Include resyncing/recovering progress
This enables informing about the progress of a running resync/rebuild. An e-mail will be sent for every 20 % done.

Include array status
Information about the status of the event-related array will be added with every event.

Function: Drive identifier
This function helps finding disks in the b.center. After clicking the "start" button, the appropriate disk will start reading and you can determine the actual disk by watching the disk-activity LEDs. For proper operation of this function there should be no other activity on hard drives.

✎ *Note*
Identification will stop automatically after one minute if you don't stop it before (by unsetting the appropriate checkbox and clicking "apply"). Using this function during normal operation is not highly recommended and will cause your server to slow down.

Click MD0 to display the tree with software RAID units created previously.



Function: Manager
Using this function you can manage the RAID array.
Available operations:

RAID 0:

- There is no management possible on a RAID 0. No unit must fail. If one unit failed, the whole array would be destroyed.

RAID 1:

- To set a unit as Faulty, mark the proper checkbox (in column F) and click the Apply button.
- To delete a unit from an array, mark the proper checkbox (in column R) and click the Remove button.

RAID 5:

- To set a unit as Faulty, mark the proper checkbox (in column F) and click the Apply button.
- To delete a unit from an array, mark the proper checkbox (in column R) and click the Remove button.

RAID 6:

- To set a unit as Faulty, mark the proper checkbox (in column F) and click the Apply button.
- To delete a unit from an array, mark the proper checkbox (in column R) and click the Remove button.

RAID notation:

- PR – priority in array – describes priority of unit that will be added to array if another is set to Faulty.
- F – faulty – unit can be turned off from array.
- R – hot remove – unit can be removed from array without shutting down the system.
- ST – describes the state of the unit in the array, which can be:
  - A – This means that the unit is active in the array.
  - * – Number of the unit that belongs to the array.
  - S – Spare or spare rebuilding – this means that the unit is free and can be added to the array or is free and currently rebuilding.

Limitations:

- There is no possibility to set any unit as faulty if the matrix is degraded or during resync/rebuild.
- In a RAID 1 or RAID 5 only one active disk can be set as faulty. This rule does not apply to spare units in the array.

✎ *Note*
Only one active disk in an array can be set as Faulty or Removed.

Function: Info
Using this function, you can obtain information like Creation Time, RAID Level, Array and Device Size, Update Time and state.

✎ *Note*
During synching or rebuilding an array it is recommended to perform as few disk operations as possible. The synch/rebuild status will be displayed "live" without the need for a manual page refresh.

Function: Software RAID unit remove

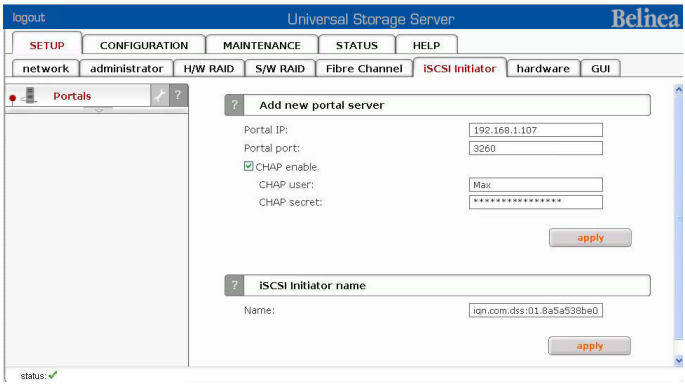
This function allows you to remove a Software RAID unit (MD[nr]).

Note

This function is available only when no Logical Volume has been created on the appropriate MD[x] and when the unit is not resyncing.
If you want to remove a software RAID unit with a Logical Volume please use console Extended tools (press F1 on console to find out keyboard shortcuts) and remove the Logical Volume first.

iSCSI Initiator

Here you can view a list of all connected iSCSI server portals. Click on a portal IP to manage the portal targets or remove the portal.



Function: Add new portal server

With this function you can connect to a remote iSCSI server and add it as New Portal Server. It will be visible in iSCSI Initiator on the left. You can use the following options:

Portal IP
Please enter the IP address of the iSCSI server.

Portal Port
Enter the port on which the iSCSI server runs (default 3260).

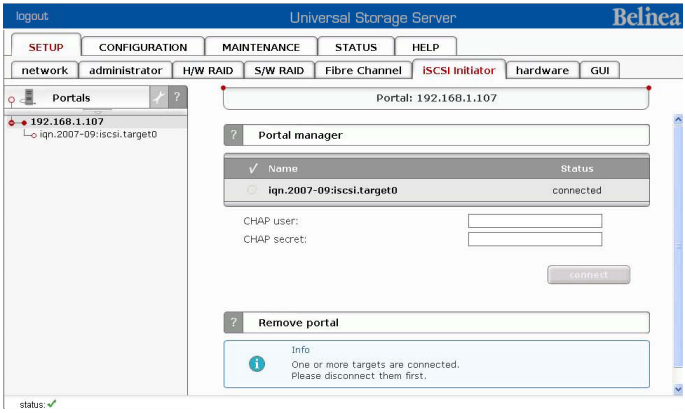
CHAP enable
If you want to enable CHAP user authentication please check the "CHAP enable" box and enter the CHAP user name and secret.

Function: Initiator iSCSI name

Here you can change the name and alias for an iSCSI initiator.

Name

An iSCSI initiator name can contain alphanumeric characters and: '.' ':' '-'. An initiator name is considered case-insensitive. Every character entered will be converted to lower case. No spaces and no underscores are permitted.



Function: Portal manager

This function displays available targets from the selected iSCSI Portal Server. In order to connect to an iSCSI target, select its name and click the "connect" button. If authentication for the target is enabled, then also enter the target name and its secret. Connected targets will be available in server -> disk manger as Units. You can manage them and perform the same operations as on local Units.

Note

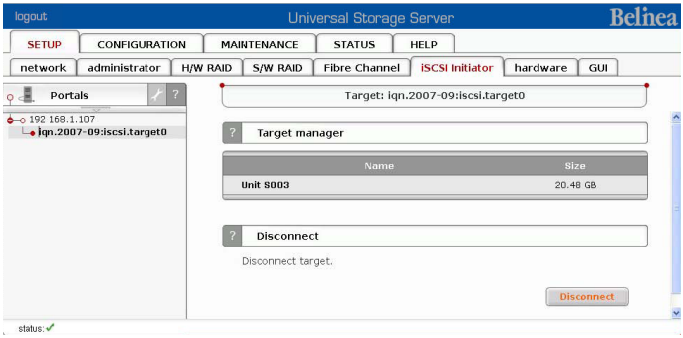
In order to disconnect from the target, select its name in the iSCSI Initiator tree and click the "disconnect" button. To remove an iSCSI Portal server, you first need to disconnect all targets from it.

Function: Remove portal

Here you can remove the selected Portal Server.

Note

You can only remove a Portal Server once all its targets have been disconnected from it. In order to disconnect a target from a Portal Server, please select it from the iSCSI initiator tree and click the "disconnect" button.



Function: Target manager

Here you can view the name and size of any connected target. You can also disconnect the target from the Portal Server using the Disconnect function.

Function: Disconnect

Here you can disconnect the selected target from the Portal Server.

Note

You can only disconnect a target from a Portal Server if no volume group or S/W RAID unit exists. If a volume group or S/W RAID unit exists you have to remove it in console tools (press F1 on console to find out keyboard shortcuts).

Hardware

Function: UPS settings

Here you can configure your UPS device (Uninterrupted Power Supply).
In order to use a UPS device, please select the "Use UPS" option.

Set UPS vendor
Select the UPS vendor for your UPS device. APC and MGE vendors are available.

Single
Means that the server is the only system attached to this UPS and that no action should be taken to perform a remote shutdown for other systems in the network.

Master
Means that the server is connected to the UPS and sends a signal through the network to shutdown other systems in the network.

Slave
Means that the server is reacting to a "power down-signal" from the UPS master.

If using APC as vendor with UPS Master mode the following fields are available:

Net port
TCP port on which UPS master connects to UPS slave.

Slave
IP address of APC UPS slave.

If using APC as vendor with UPS Slave mode the following fields are available:

Net port
TCP port on which UPS slave connects to UPS master.

Master
IP address of APC UPS master.

If using MGE as vendor with UPS Master mode the following fields are available:

User name
User name that will be accepted to connect from UPS slave.

Password
Password for User name.

Slave IP
IP address of MGE UPS slave.

If using MGE as vendor with UPS Slave mode the following fields are available:

User name
User name that will connect to UPS master. It must be the same as on UPS master.

Password
Password for User name.

Master IP
IP address of MGE UPS master.

UPS model
Select a UPS model for your vendor.

Port
Select a port to which the UPS is connected.

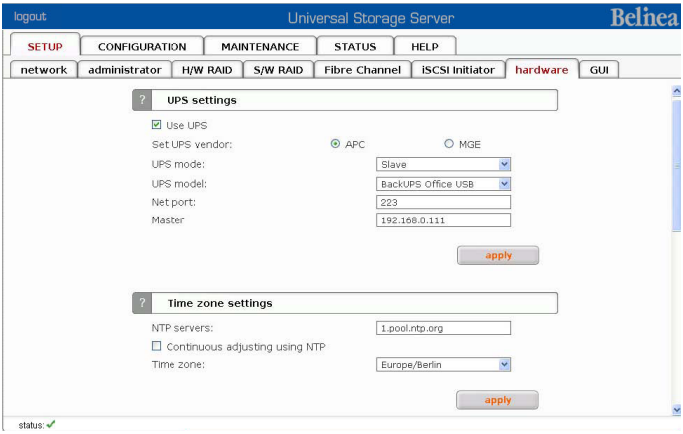
Cable type
Cable type for your APC UPS.

Timeout
The time-out defines the time between a power failure and the moment the system will shut down.

Timeout – Battery Limit
This option enables sustaining the system as long as the battery holds (the system will shutdown when battery charge drops to 5% or when there are 3 minutes time to total discharge of battery).

Turn off UPS after system shutdown
This will turn off the UPS after the time that is set by the parameter Shutdown grace delay (SLEEP) in the EEPROM of the UPS.

✎ *Note*
If using UPS slave and master modes, all UPSs need to be from the same vendor.



Function: Time zone settings

This function allows to set NTP server settings.

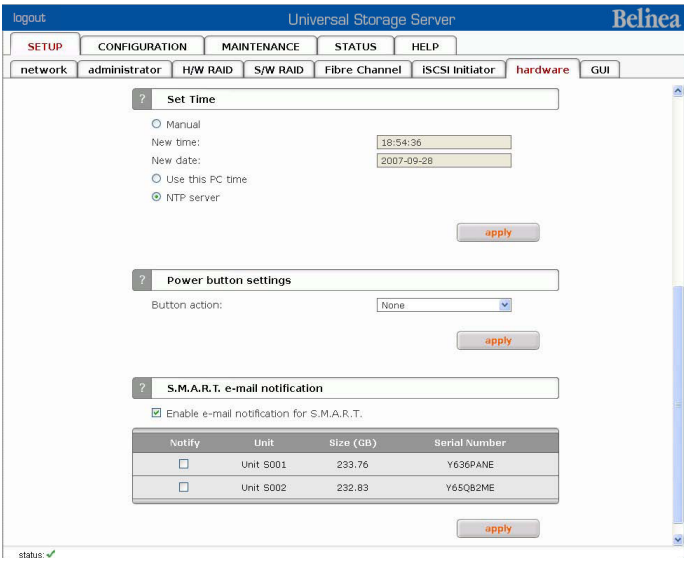
Please choose an NTP server (Network Time Protocol; for more info: www.ntp.org). You may provide a fully qualified host name or an IP address. Select the time zone according to your location.

The "Continuous adjusting using NTP" option will watch your system time and correct it if the difference between local time and server time has changed. Activating this option is recommended especially in domains.

✏ *Note*

Correct time settings are very important for the server to work properly.

In order to use this function, the gateway and (in case of host name) DNS must be set up correctly.



Function: Set time
Using this function you can set time and date:

Manual
Simply type in time & date using the following format: hh:mm:ss yyyy-mm-dd.

Use this PC time
Will pick up the time & date of the PC where you run the web browser.

NTP server
Will pick up the time & date from an NTP server. In this case please make sure you have Internet access and the network settings are correct, especially gateway and DNS. You can check proper Internet access using ping from the NAS console (press F1 on console to find out keyboard shortcuts). To use this option, the NTP server must be set up correctly in the "Time zone settings" function.

✎ *Note*
Correct time settings are very important for the server to work properly.

Function: Power button settings
In this section you can specify which action will be performed when the power button is pressed. The following options are available:

Reboot
Restart computer.

Halt
Power off computer.

None
No action.

Function: S.M.A.R.T. e-mail notification
This function allows you to check the S.M.A.R.T. status of hard disks and send it to an e-mail address.
S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) is a monitoring system for computer hard disks to detect and report on various indicators of reliability, in the hope of anticipating failures.

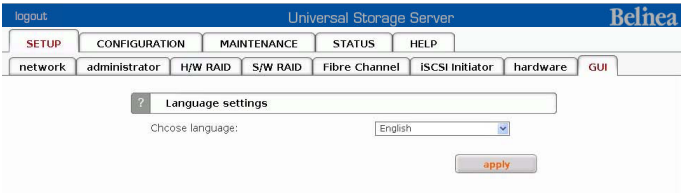
In order to enable S.M.A.R.T. e-mail notification, you have to:

- First enable E-mail notification function in setup -> administrator menu.
- Enable S.M.A.R.T. in Hardware configuration tool on console (press F1 on console to find out keyboard shortcuts).
- Once S.M.A.R.T. is enabled you will see all detected hard drives with information about unit number, size and serial number.
- Select the checkbox of the unit from which you want to receive S.M.A.R.T. status and click "apply".
- If everything is ok, then the status will be PASSED, otherwise it will be FAILED.

GUI

Function: Language settings

Select your preferred language and click the "apply" button.



CONFIGURATION

Volume manager

Function: Unit rescan

This function rescans your system for new units.

Function: Unit manager

This function allows you to manage physical storage devices – Units (hard drives).
Units that have the "available" status can be used for creating a new volume group, new dynamic volume or expanding existing volume groups.
It is possible to combine two (or more) units into one Volume Group.

- While creating the "new volume group", the system adds selected units only. You can use the default volume group name or change it.
- If you want to expand an existing volume group select the action "add to ..." for the desired volume group name.
- You can also create a new dynamic volume.

After creating, the page is reloaded and the "Status" field will display your drives/arrays as "in use".

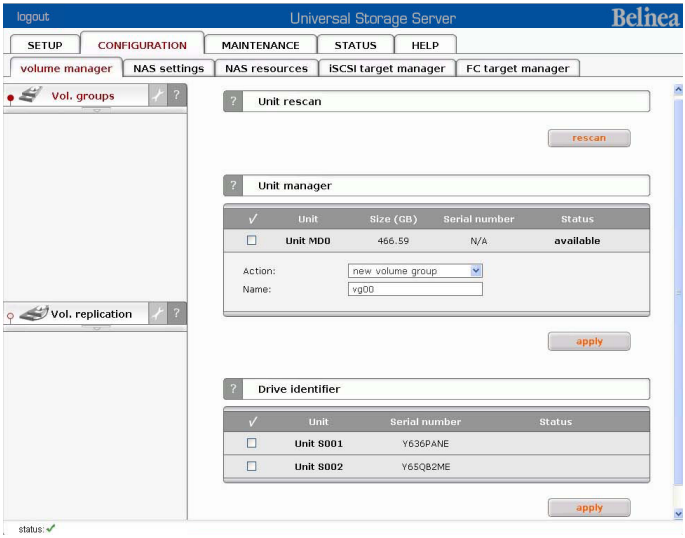
For further management of a volume group, e.g. creating logical volumes, please click the volume group name in the tree diagram. In the function Volume Manager you can create a new NAS volume (N) and/or new iSCSI volume (I).

Disk notations:

- S0, S1, ..., S[x] – SATA units.
- H0, H1, ..., H[x] – IDE units.
- MD0, MD1, ..., MD[x] – softRAIDs.

✎ *Note*

- Units that are already used in a volume group can be made available again by using the "Delete content of units" function in the console. Be aware that this will erase all data from a Unit!
- You can only use units with a capacity greater than 5 GB; smaller units are not supported.

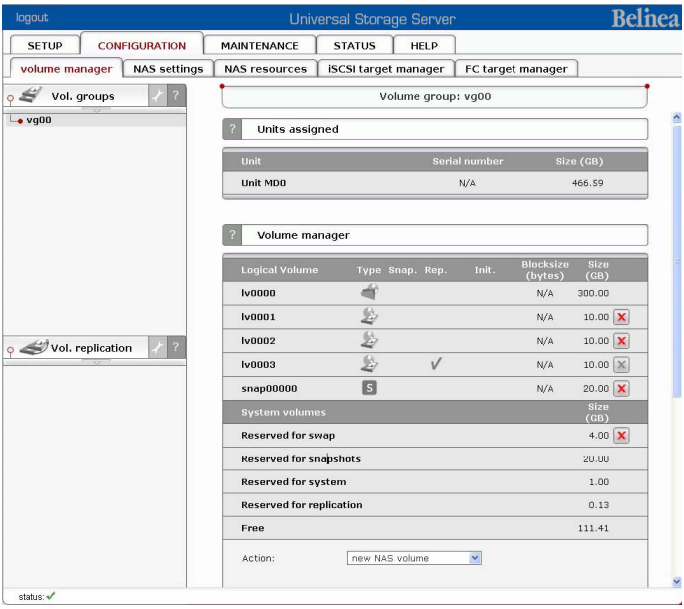


Function: Unit identifier

This function helps finding disks in the b.center. After clicking the "start" button, the appropriate disk will start reading and you can determine the actual disk by watching the disk-activity LEDs. For proper operation of this function there should be no other activity on hard drives.

Note

Identification will stop automatically after one minute if you don't stop it before (by unsetting the appropriate checkbox and clicking "apply"). Using this function during normal operation is not highly recommended and will cause your server to slow down.



Function: Units assigned

Using this function you can view physical units attached to this volume group.

Function: Volume manager
This function allows:

- Increasing an existing and creating a new NAS volume or iSCSI volume.
- Reserving disk space for swap.
- Creating, expanding and deleting snapshots.

In order to add storage space to an existing NAS volume or iSCSI volume, select "LV" from the dropdown menu. Use the scroll bar to choose the size.

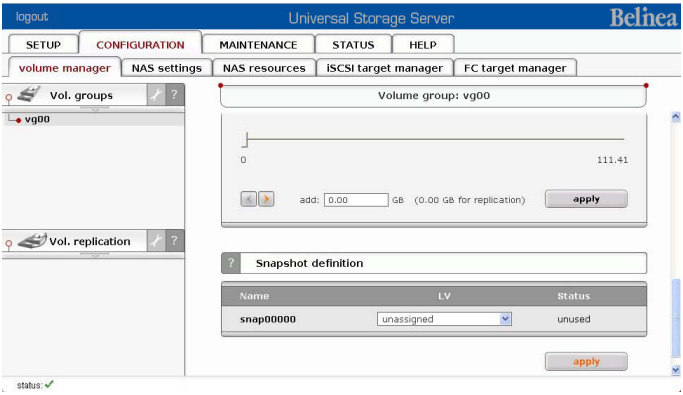
Use replication
Selecting this option when creating a new or expanding an existing iSCSI volume (I) will enable Volume replication for that volume.

In order to remove a replication functionality from an iSCSI volume:

- Select the expand option for an iSCSI volume from the Action combobox, for example expand lv0001.
- Uncheck the "Use replication" option.
- Leave the volume size unchanged.
- Click the "apply" button.

Initialize
This option is available when creating an iSCSI volume (I) for security reasons. The volume will be initialized after the creation process. While the volume is initializing the "enque" button will show up. With this button you can send a volume that is initializing to the end of the initialization queue. Every volume that is waiting in queue for initialization can also be sent to the end of the queue, like a volume that is already initializing.

✎ *Note*
While adding a new Unit, 4 GB of space will be reserved for swap (if no swap has been created before). In addition, 1 GB of space will be reserved for system internal use.



Function: Snapshot definition

This function allows you to define parameters for snapshots.

You can set the Logical Volume to which a snapshot will be assigned.

Name
Name of snapshot.

LV
Select the Logical volume to which the snapshot will be assigned. If no Logical volume has been assigned to the snapshot yet, then the LV field will display "unassigned".

Status
Status of snapshot. Can be one of the following:

Active
Snapshot is in active state.

Inactive
Snapshot is inactive, probable reason: overflow.

Unused
Snapshot is currently unused.

The Snapshot function enables the system administrator to freeze the data content of the volume at a certain time. From this moment on, the users work on a virtual data volume, all changes to the volume are stored in a different partition. The changes are saved on block-level, which is independent of the file system. Snapshots can be created (active state) / removed (unused state) manually or automatically.

✎ *Note*
The space reserved for snapshots should be calculated with diligence. It is recommended to choose a snapshot size according to the changes which are expected during the active snapshot. E.g. when you are taking a backup from a snapshot and the backup procedure takes one hour, you should set the snapshot size to fit the space that will be changed during that hour. The snapshot will become inactive if the content (data changed on Logical Volume) exceeds the snapshot capacity. You will not lose data in that case; however, the dataset which is virtual for the users at that moment will be written to the data volume. The old dataset, which had been frozen with the snapshot, will not be available any longer.

✎ *Note*
When you define the schedule, use only as many snapshots in the same time as really needed. A large count of active snapshots can slow down the system considerably.

✎ *Note*
Manual creation and removal of snapshots can be done in "SETUP" > "volume manager" > "vg[nr]" > "Volume Manager".

How to access a NAS snapshot
After a snapshot has been created and activated, you can access it as follows:

- Go to "CONFIGURATION" > "NAS settings" and select the network protocol where snapshots will be accessible. This needs to be done only once. When creating access to another snapshot, this action won't be necessary. You can activate access to snapshots on the following protocols:
  - NFS,
  - SMB (My network places),
  - FTP,
  - AFP.
- Create a new share that will be assigned to the previously activated snapshot.
- Go to "CONFIGURATION" > "NAS resources".
- In the "Create new share" function:
  - Enter a share name.
  - Use the "Specified path" option and select the snapshot that you want to have access to.
  - Click the "apply" button to create a share.
- Now you can start to explore your share (snapshot) using the specified network protocol.

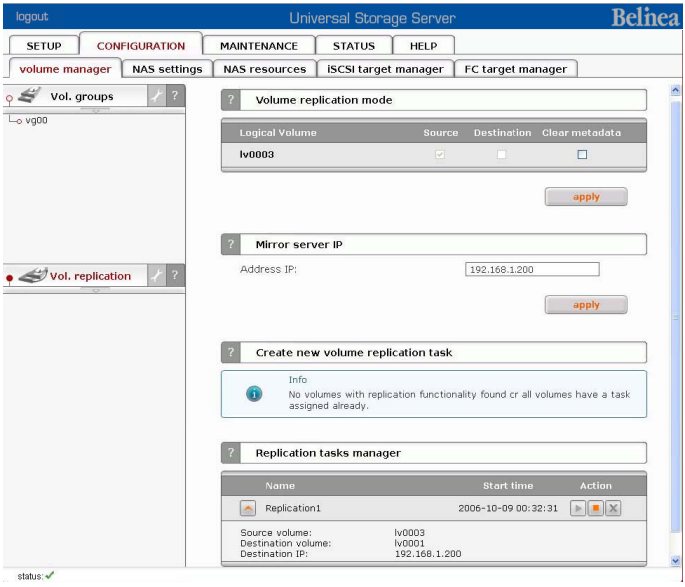
How to access an iSCSI target snapshot

After a snapshot for an iSCSI target has been created and activated, you can access it as follows:

- Go to "CONFIGURATION" > "iSCSI target manager" > "Targets" > [target_name].
- Use the "Target volume manger" function, click the "add" button on the right side of the snapshot you want to access. A new LUN will be added to the target.
- Now you can connect with your iSCSI initiator and use your snapshot target.
- Example (Microsoft Windows environment):
    - Please download Microsoft iSCSI Initiator and follow the instructions.
    - Start the software and add targets.
    - Go to "Target Portals" and enter the IP Address of your b.center and the Socket number (default 3260).
    - In the "Available targets" menu please "Log On" into already added target.
    - Now your snapshot target will show up in your system and you can use it.

Function: Volume replication mode

Here you can set the replication mode for each logical volume (with replication functionality). The volume can be in source (S) or destination (D) replication mode.
You can also clear the metadata (CM) of a volume. Metadata describes the data of the replication.
Clearing the metadata is required when you want to start the replication process from scratch.
In case the data on the source volume is inconsistent and you want to restore it from a destination volume, you need to change the replication mode of the destination volume to source mode and the previous source to destination mode. Before starting a replication for the new source and destination please clear the metadata from the previous destination volume. When replication is complete the data on the previous source volume will be consistent. If the volume is set to destination replication mode then it will not be visible in iSCSI initiator.



Function: Mirror server IP

Here you can set the IP address of a mirror server. It must be entered in order to define a volume replication task.

Setting the IP address on the destination server is for security reasons. This will allow only an approved IP address to send data to the destination target.

Function: Create new volume replication task

Using this function you can create a volume replication task. Replication creates an exact copy of data from source volume to destination volume in real time. For example: If you create a file on the source volume, then the same file will be created on the destination volume. Destination and source volumes need to be the same size for successful volume replication. Replication can be used only between two mirror replication servers.

Here replication tasks are only created. They can be enabled in the "Replication Task Manager" function.

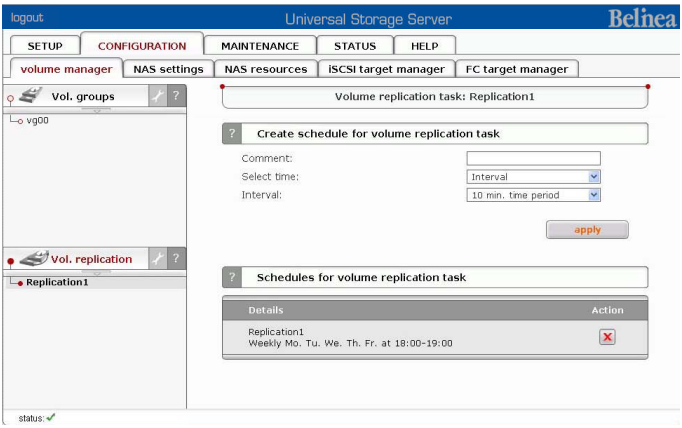
Please enter the task name, select the source volume and the destination volume. Click the "Create" button in order to create a replication task.

✎ *Note*

The volume replication process runs on randomly chosen ports from 12000–13999. These ports have to be open in firewalls as incoming and outgoing.

Function: Replication task manager

Here you can run, stop and delete previously created volume replication tasks. While a replication task is running you can't change the replication mode for a logical volume, delete the metadata or change the mirror server IP address. The replication process must be stopped first.



Function: Create schedule for volume replication task

Here you can create a schedule for the selected volume replication task.

Comment

You can enter a comment for the replication schedule.

Time select

You can start volume replication immediately by selecting “Now” from the “Time select” drop-down list or add it to a schedule.

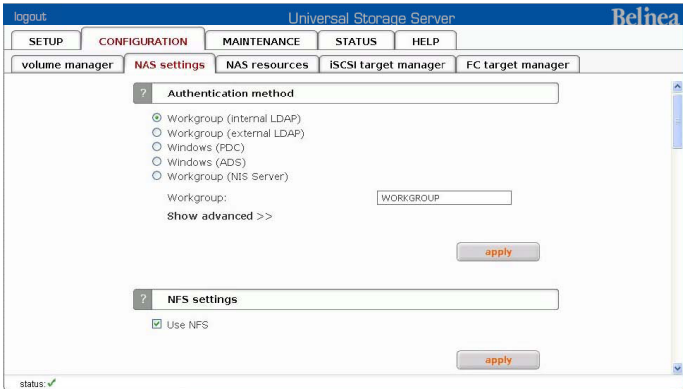
Interval

Select the time period at which the replication will run.

Function: Schedules for volume replication task

Here you can manage all schedules created for the selected volume replication task.

NAS settings

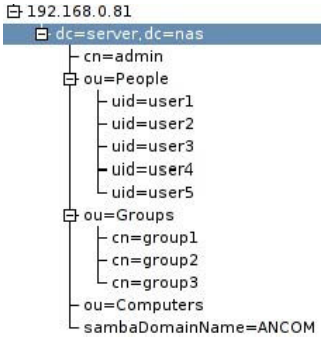


Function: Authentication method

The server administrator can choose one of the following authentication methods for the users:

Workgroup (internal LDAP)
In this case you have to create all user/group accounts in the resources menu. Please enter your network workgroup name in the field Workgroup.

Workgroup (external LDAP)
If you select external LDAP (Lightweight Directory Access Protocol), the NAS server will use users/groups from an external LDAP server. Please fill in all fields accordingly. In advanced settings you can set Base DN, LDAP administrator DN (Distinguished Name) and LDAP administrator password. Base DN should look like "dc=server,dc=nas" (DC – Domain Component), where "server" and "nas" can be set as they are set on the remote LDAP server. In LDAP administrator DN you should set the previously entered base DN with a prefix like "cn=admin," (CN – Common Name). Users should be stored in Organization Unit (ou) "People", groups in "Groups", and computers in "Computers".
A sample organization might look like the one shown below:



Windows (PDC)
In this case your b.center will use the Windows Primary Domain Controller user database for user authentication. This method can be used for NT4/2000/2003 servers. If the Windows 2000/2003 server runs ADS native mode, please use the Windows (ADS) method.

✎ *Note*
If the PDC server runs NT4, please use the following procedure in case you experience problems to get a connection:

1. Run the Server Manager program from Start > Programs > Administrative Tools (Common) > Server Manager.
2. From the Server Manager menu select Computer > Add to Domain.

   WARNING: If NAS resource is already added, you must remove it.
3. In the Computer Name field enter the NAS Server Name (NetBIOS name).
4. Click the Add button.
5. Next, in NAS server web administration: choose CONFIGURATION > NAS-Settings.
6. Choose Windows (PDC) as Authentication method.
7. In the Server IP field enter the NT server IP address.
8. In Name & Password fields enter NT4 administrator account name and password
9. Click apply button.
   WARNING: If connection fails, you will have to start all over again with step 1 to try again.

Windows (ADS)
This option can be used for Windows 2000/2003 ADS servers:

- Please enter the Realm name of your Windows 2000/2003 server.
- It can be found under Windows system by right-clicking on My Computer and selecting Properties, then clicking the "Computer name" tab. The realm name is the same as the Domain name.
- The KDC IP address must be taken from the same system as the Realm.
- Enter administrator login and password.
- Click "apply" to connect to Windows (ADS) domain.

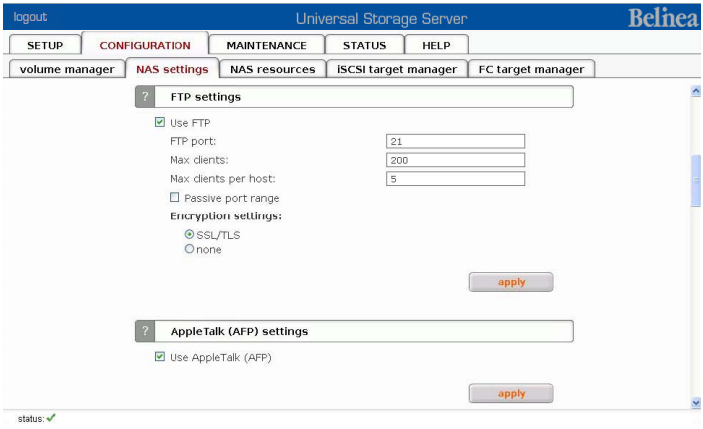
Workgroup (NIS server)
Please choose this option if you want to use a user/group database from a Network Information Service server.

✏ *Note*

1. Workgroup name cannot begin/end with a space and cannot contain special characters like: ~!@#$^&()+[]{}*;:'".,%|<>?/\=`
2. Changing the authentication method may result in loss of ACL (Access Control List). In such case please set user/group access rights for every share and reset ACLs.
3. If SMB authentication is enabled, please edit the Windows registry: HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\lanmanworkstation\ parameters\ and change the value of the DWORD 'enableplaintextpassword' to '1' (hex format).

Function: NFS settings
Click Use NFS to enable access to shares and/or snapshots via NFS.
Network File System (NFS) is a protocol for distributed file systems which allows a computer to access files over a network as easily as if they were on its local disks.

✏ *Note*
If the host has an entry in the DNS field but doesn't have a reverse DNS entry the connection to NFS will not work.



Function: FTP settings
To enable FTP services check Use FTP.

FTP port
Provides the port where the FTP service is listening.

Max Clients
Limits the total number of concurrent FTP connections.

Max client per host
Limits the total number of connections originating from a single host.

Min. port
Minimum port number for FTP passive mode. Must be smaller than the maximum port number.

Max. port
Maximum port number for FTP passive mode. Must be greater than 1024.

Encryption settings

SSL
Data transfer will be encrypted by SSL protocol.

none
Data will be sent without encryption.

✎ *Note*
The option to access the server via FTP (File Transfer Protocol) offers additional flexibility as users can access storage either from the Intranet or Internet. Access rights are allocated on the basis of the accessing PC's IP address. Read access is therefore granted with anonymous login data (see below). In order to grant write access for specific computers, enter the desired IP addresses in "IP address complete access". The FTP port (standard: 21) can be changed in the configuration menu.
On the client side, an FTP client offers most flexibility (e.g. SmartFTP), but Internet Explorer or a similar webbrowser are also suitable.
To establish a connection, the following information must be entered in the FTP client:
IP address: 192.168.0.220 (this is the standard address); Port: 21; User: anonymous; Password: 123.
The port number must be adapted if it was changed in the server's configuration menu.
If you use Internet Explorer for access, you need to enter "ftp://192.168.0.220" in the address field. You are not prompted for user name and password as Internet Explorer establishes an anonymous connection. If you changed the FTP port on the server, the port number must be added as follows: "ftp://192.168.0.220:4711" (in this example, 4711 is the new port number).

How to enter IP addresses
In order to add specific computers, enter the desired IP addresses separated by semicolons, for example: 192.168.0.1; 192.168.0.2; 192.168.0.222; etc.

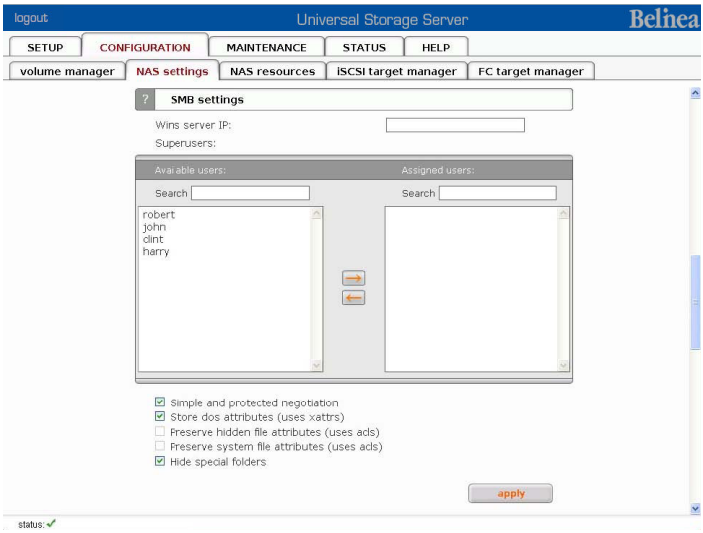
In order to add the entire address range from 192.168.0.1 to 192.168.0.254 enter: 192.168.0.0/24

In order to add the entire address range from 192.168.0.1 to 192.168.255.254 enter: 192.168.0.0/16

There are many more possible combinations. You may find details on IP calculation on the Internet by searching for "ipcalc".
For example: 192.168.0.1/28 will set range from 192.168.0.1 to 192.168.0.14
192.168.0.100/29 will set range from 192.168.0.97 to 192.168.0.102
You can easily calculate the network IP range using an IP Address Calculator like:
http://www.camtp.uni-mb.si/books/Internet-Book/IP_AddressCalculator.html

Function: AppleTalk (AFP) Settings

Here you can activate the AppleTalk protocol in the network to access shares on the NAS Server.



Function: SMB settings
This function allows you to edit SMB protocol specific parameters. There are several options you can change:

Wins server IP
If you have a WINS server on your network then you should set this to the WINS server's IP.

Superuser
Superuser is a user who has permission to take ownership of folders and files which belong to other users. It can be useful if the administrator wants to change access rights (ACL) for folders or files established by other users. To give superuser privilege to a user pick them from the menu. Superuser privileges allow to modify, remove and add new files in the share and perform these actions even on files and directories which are not owned by the superuser.

Simple and protected negotiation
Simple and Protected Negotiation (SPNEGO) is a negotiation protocol. If you use a PDA Device to access shares on the NAS please uncheck this option.

✎ *Note*
For connecting to your PDA Device use its NETBIOS name, not the IP address.

Store dos attributes (uses xattrs)
This option enables preserving all MS-DOS attributes using Linux xattrs attributes. It cannot be set when you are using "Preserve hidden file attributes" or "Preserve system file attributes".

Preserve hidden file attributes and Preserve system file attributes (uses acls)
These options enable preserving the MS-DOS attributes hidden and system. These attributes are mapped to x (EXECUTE) attributes for group and for others in Linux POSIX ACL. Windows ACL permissions are also mapped to Linux attributes. In order to avoid attribute mismatch, it is strongly recommended to disable these options. These cannot be set when you are using the Store dos attributes option.

Hide special folders
This option hides special folders that are created by MAC OS/OSX systems. Thanks to this, users cannot see MAC OS/OSX system files via the SMB protocol.

MAC OS/OSX system files:

1. .DS_Store
2. .AppleDouble
3. Temporary Items Network
4. Trash Folder
5. TheFindByContentFolder
6. TheVolumeSettingsFolder
7. .AppleDesktop
8. .AppleDB
9. Icon?
10. .VolumeIcon.icns
11. .FBIndex
12. .FBClockFolder

✏ *Note*
Change of the ACLs and/or xattrs settings requires confirmation because these changes can result in some files being no longer displayed for users. Changing these settings is not recommended on servers on which data is already stored. If some files are not visible after changing the Preserve hidden file attributes (uses acls) and/or Preserve system file attributes (uses acls), the user can remove the hidden attribute from files by using the command: attrib -S -H x:*.* /s /d where: x is the network drive.
Any change in SMB settings will disconnect users that are currently connected. This requires confirmation by the user; the confirmation form will only appear if a user is connected to SMB. If the user clicks the "cancel" button, the settings will be saved but the connection to SMB will not be reset.

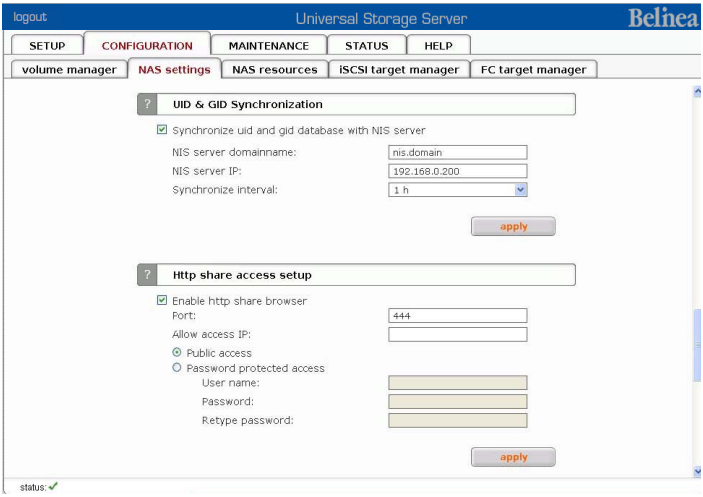
Function: UID & GID synchronization

Synchronize UID and GID database with NIS server
Enable this option if you want to synchronize user ID and group ID databases with a NIS server.

NIS server domainname
NIS server domainname without HTTP prefix.

NIS server IP
IP address of your NIS server.

Synchronize interval
Time period when synchronization will be run.



Function: Http share access setup

Here you can setup a HTTP access for shares.

Enable http share browser
Turning on this option will enable HTTP share browser. Access to shares will be available via web browser. You can browse and download files by entering one of the following lines in your web browser's address field:

https://SERVER_IP_ADDR:PORT
https://SERVER_NAME:PORT

Example:
https://192.168.0.220:444

Port
Port on which HTTP share browser will be available, default port is 444.

Allow access IP
List of IP addresses that will have access to the HTTP share browser.

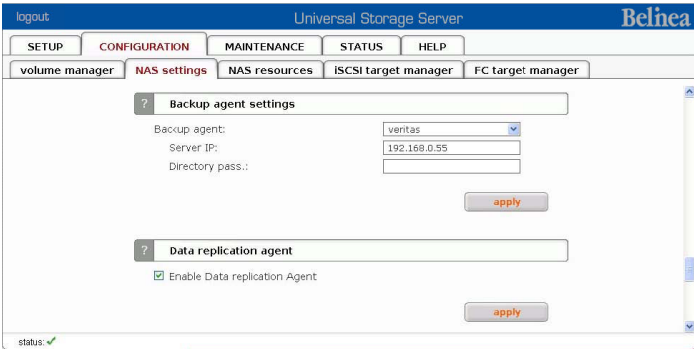
Access to shares can be:

Public access
When this option is set everybody will have access to the shares over HTTP.

Password protected access
When this option is set, then access to the shares will be protected by a password.

- User name
  Please enter a user name that will have access to the shares over HTTP.
- Password
  User password.
- Retype password
  User password retype.

✎ *Note*
In order to access your share via a web browser, the option "Use http share access" must be activated for the selected share in the "Http share access" function in "CONFIGURATION" > "NAS resources" -> [share_name].



Function: Backup agent settings
Here you can enable a backup agent (client). Currently, the following agents are supported:

- Veritas – Backup Exec
- Dantz – Retroclient
- CA – BrightStor

If you enable the backup agent, your backup server will find the agent running on the NAS server and will use it for backup. Alternatively, you can find and backup the NAS shares over My Network Places. However, using a backup agent will be significantly faster.

Veritas:
Here you need to provide an IP address of a server running Backup Exec. The "Directory Pass" is a password that Backup Exec might prompt for.

Backup:

1. In Veritas Backup Exec set a user in the "Network" > "Logon Account Management".
2. Enter the password as provided before in the NAS Server function "Backup client setting".
3. Choose "Backup". A "Backup Job Properties" window will appear.
4. A list of network shares will be shown in that window.
5. Click on the "Remote Selections" branch and then on "Unix Agents". A NAS server name will appear.
6. Click the server "NAS_server/logical volume". A window "Logon Account Selection" will be displayed where you need to choose the same user name as in step 1.
7. After choosing a user, the "Logical Volume" and NAS server shares will appear. Select the correct share and click the "Run Now" button. The selected shares will be backed-up.

✎ *Note*
Under certain conditions, the window "Logon Account Selection" will not appear automatically. In this case you have to right-click the name "NAS_Server/share_volume" and select "Connect As..." in the context menu. Only then the "Logon Account Selection" window will appear.

Restore:

1. By choosing "Restore", a "Restore Job Properties" window will appear.
2. On the left side of the window, in Properties > Source, click "Selection". The name of the NAS server containing the shares that were backed-up earlier will be displayed.
3. Choose a folder you want to be restored from the appropriate backup file.
4. From the Source > Resource Credentials menu choose a user account for the NAS (NAS_server/share_volume) server and click the "Run Now" button.

✎ *Tip*
In order to use an Incremental method, choose it from the Setting > General > Backup Method menu. Please use method "Incremental - Using modified time" (the "Reset Archive bit" method does not work on an XFS partition).

BrightStor:
Allow IP or Network IP:
Please enter the Backup server's IP address in order to grant access to the NAS. If you leave this field empty, all BrightStor backup servers in the network will have access to the NAS server.

User:
By providing a user name, only this BrightStor user will have access to the NAS. If left empty, all users will be able to access the NAS server.

Before you start to backup your data, you have to configure the device to which the backup will be written and add your NAS server as source. Please follow these steps in order to do so:

1. From the menu bar, choose Configuration > Device configuration. The Device configuration wizard will appear. It will help you configuring backup devices on your server.
2. Choose Windows Server and click Next.
3. From options, select File System Device and click Next.
4. Click the Add button. The File System Device will be added to the list.
5. Click the Location field of the newly created entry and select the path that will be mapped to File System Device.
6. Click the Finish button to complete the Device configuration wizard.
7. Click Exit to quit the Device configuration.
8. Finally, you have to format your newly created File System Device. To do this, select Device from the Quick start menu and select your newly created File System Device.
9. Click the Format button; the format form will appear.
10. Enter a media name and click OK to format the media.

Configuration of NAS server:

1. From the Quick start menu, select Backup.
2. From the Source branch, select Unix/Linux Systems and right-click it.
3. Select Add Machine/Object. The Add client form will appear.
4. Enter the host name and IP address of your NAS server.
5. Click Add in order to add your NAS to the list.
6. Click Close to quit the Add Machine/Object form.

Backup:

1. From the Quick start menu, select Backup.
2. From the Source branch, select the NAS server volumes that you want to backup.
3. Click the Start button; the Security and agent information form will appear.
4. Click the Agent button if you want to modify NAS server information.
5. Click the OK button; the Submit job form will appear.
6. If you want to start the backup process later, make sure that the Job Execution Time is properly set.
7. Enter a job description and click OK to start the backup process.

Restore:

1. From the Quick start menu, select Restore.
2. From the Source branch, select the NAS server volumes that you want to restore.
3. Click the Start button and then OK; the Submit job form will appear.
4. If you want to start the backup process later, make sure that the Job Execution Time is properly set.
5. Enter a job description and click OK to start the restore process.

Retroclient:
Configuration of NAS server:

1. From the menu, select Configure, then click on Clients; the Backup Clients form will appear.
2. Click the Add button; the Add backup client form will appear.
3. Enter the IP address of your NAS server and click the Add button; the connection form will appear.
4. Enter the password to connect to the NAS server and click OK. The password for Dantz Retroclient is set to "admin". The NAS server is now properly configured to work with Dantz Retroclient.

Creation of backup sets:

1. From the menu, select Configure, then Backup sets; the Backup sets form will appear.
2. Click the Create New button; the Backup sets creation wizard will appear. Click Next.
3. From Backup media options, select File and click Next.
4. Enter a name and the location for the backup. Click Next.
5. Select Backup set security and click Next.
6. Click the Finish button; the Backup set creation process is completed.

Backup:

1. From the menu, select Backup, then click the Backup button. The Source selection form will appear.
2. Select the NAS server volumes you want to backup. Click OK.
3. The Backup process form will appear. Click Backup to start the backup process.

Restore

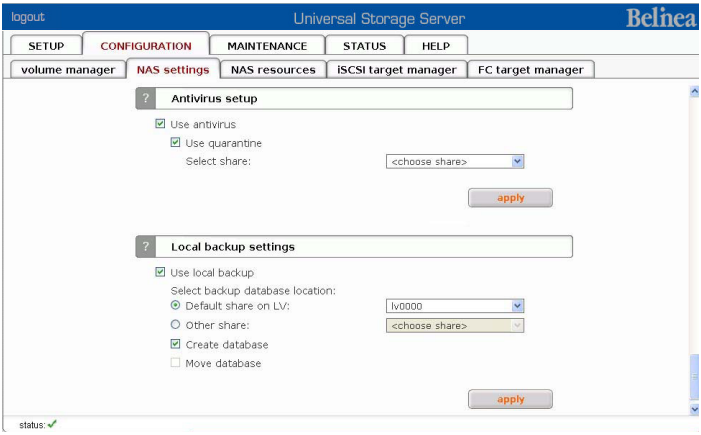
1. From the menu, select Restore, then click the Entire volume button.
2. Select the source backup set which shall be used for the restore process.
3. Select the destination NAS server volume.
4. Click the OK button, then click Replace to begin the restore process.

Password for Dantz Retroclient is set to "admin".

✎ *Note*
The full computer name in Windows can be found by right-clicking "My computer" > "Preferences" > "Computer Name" under "Full Computer Name".

Function: Data replication agent
This function enables the Data replication agent.

✎ *Note*
This is mandatory to replicate the destination share.



Function: Antivirus setup
This function provides Antivirus protection for your data.
Antivirus scans the following file types:

- Archives and compressed files:
  - Zip
  - RAR (2.0)
  - Tar
  - Gzip
  - Bzip2
  - MS OLE2
  - MS Cabinet Files
  - MS CHM (Compiled HTML)
  - MS SZDD compression format
  - UPX (all versions)
  - FSG (1.3, 1.31, 1.33, 2.0)
  - Petite (2.x)
- Mail files
- MS Office document files
- Executable files

The Quarantine feature allows you to choose either to move the infected files to the default folder (quarantine_dir) which is automatically created in shares, or to manually choose the place of quarantine in a previously created share (example: share named "Quarantine"). For information on the infected files see the logs. You will find details on which files are infected and by what viruses they are infected.

✎ *Note*
If there is no option "quarantine" you will be only informed about the infected file. Please note that antivirus scanning may slow down overall system performance.

Function: Local backup settings
This function enables local backup functionality.

Use default share on LV
With this option you can store a database of all backups on the default share on the selected logical volume.

Use other share
With this option you can store the database of all backups on the selected share.

Move database
If this option is checked the existing backup database will be moved to the selected share.

✎ *Note*
If the selected share has any files other than the backup database files, then it will not be possible to create a backup database in that share. If you want to create a backup database in that share anyway, you have to delete the files from that share at first.
You can only move a backup database between default shares on logical volumes or between other shares. You cannot move a backup database from a default share on an LV to another share.

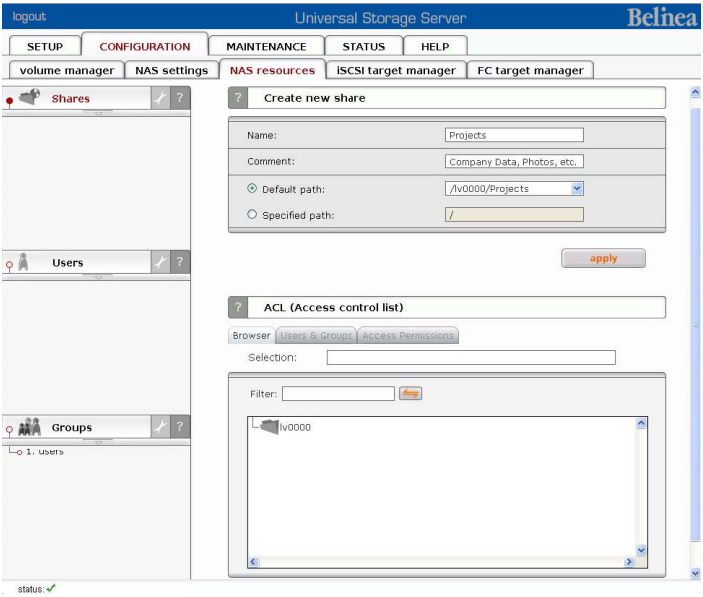
NAS resources

Here, you can configure NAS resource operations. Using the tree diagrams on the left side, you can manage all shares, users, and user groups in a structured manner.

Shares

Here, all shares on your Belinea b.center are listed. After selecting "Shares", you can use the function "Create new share" to define a new share, add a comment (optional) or set the path. Below this area, you will find all existing shares, which you can edit with a mouse click. With the exception of the name, you may alter all parameters. If, however, you must change a name, delete it and assign a new name.
Windows users will see the name of the share as the name of a subfolder in the b.center folder under "My Network Places". The comment is only displayed in the share properties or if shares are listed in detail.

The path represents the physical location of the data on the share volume of the b.center. The user will not know this path. In order to simplify navigation through the directories, you can use the browse function.



Function: Create new share
To create a share, enter the share name, add a comment (optional) and set the path. To use the default path to the share, leave the radio button Default path selected. If you want to use a specified path, please select the radio button Specified path and select the path to the share.

✎ *Note*
Please do not use spaces and special characters like: ~!@#$^&()+[]{}*;:'".,%|<>?/\=`,

✎ *Note*
The workgroup/domain name that was configured in your Belinea b.center has to match the settings of your network. Otherwise, the configured shares will not be displayed under My Network Places. If you made changes to the workgroup and server name in the NAS configuration, it can take some time until each workstation computer in the Windows network detects the new name.

Function: ACL (Access control list)
With this function you can assign ACL permissions to your folders or files.

Browser

Filter
Allows filtering folders or files by name.

Selection
Displays the current path.

Users & Groups

Available Users & Groups
List of available users and groups that can have access permissions assigned.

Selected Users & Groups
List of selected users & groups that will have access permissions assigned.

Access Permissions

Recursive
If this option is checked then ACL permissions will be assigned to all folders and files within selected folder.

Set owner
If this option is selected then the selected user(s) or group(s) will be the owner(s) of the selected folders or files.

Access Permissions

- read,
- write,
- execute (for folder this means permission to open, for file, permission to execute.)

In order to assign ACL permissions:

- Select a folder or file.
- Click the Users & Groups tab.
- Select which users or groups will be available to assign access permissions.
- Click the Access Permissions tab.
- Select user ([U]) or group ([G]) or User(owner) or Group(owner).
- Select Access permissions.
- Click the apply button.

Examples:

Example 1.
In this example, User1 has access permission only for reading directory A and doesn't have access permission to subdirectory B.
A User1 r-x
-B User1 ---

Example 2.
User1 has access permission only for reading directory A. Can open subdirectory B, but no files are displayed.
A User1 r-x
-B User1 --x

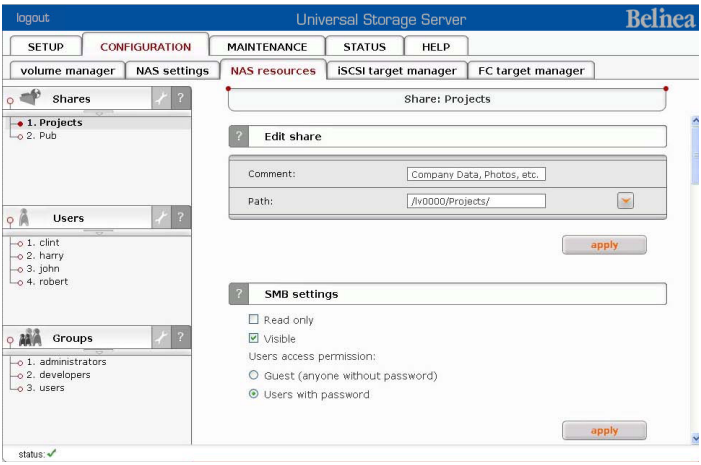
Example 3.
User1 can open subdirectory C and both read and write files inside that subdirectory.
A User1 r-x
-B User1 --x
-C User1 rwx

✏ *Note*
Setting a user as superuser in SMB settings will automatically assign all access permissions to that user.
Assigned access permissions will be available under sFTP, FTP and SMB network protocols.
User(owner) or Group(owner) can also have access permissions assigned; the permissions assigned here can be different from those assigned in the Users/Groups list.

After clicking the "create" button, the name of the share created before will appear, in this example "Projects". After clicking the name ("Project"), all available functions for the settings of the share will be displayed.

Function: Edit share

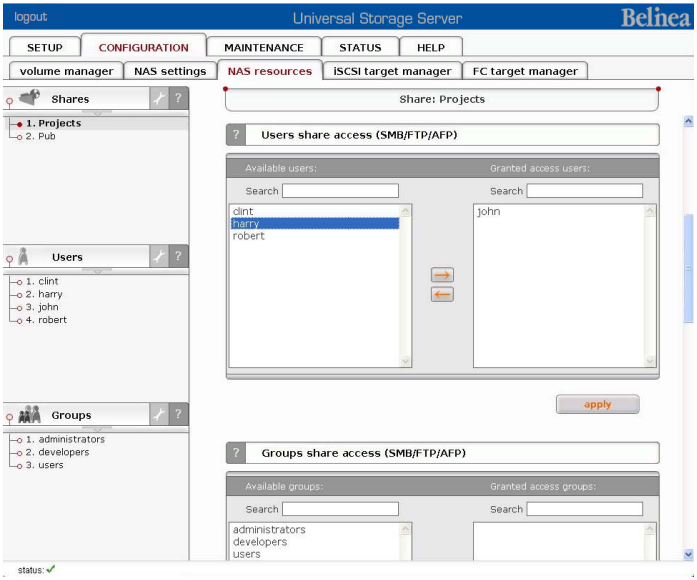
Here you can edit the path of a share, add or delete directories. You can also view files in directories by clicking the button.

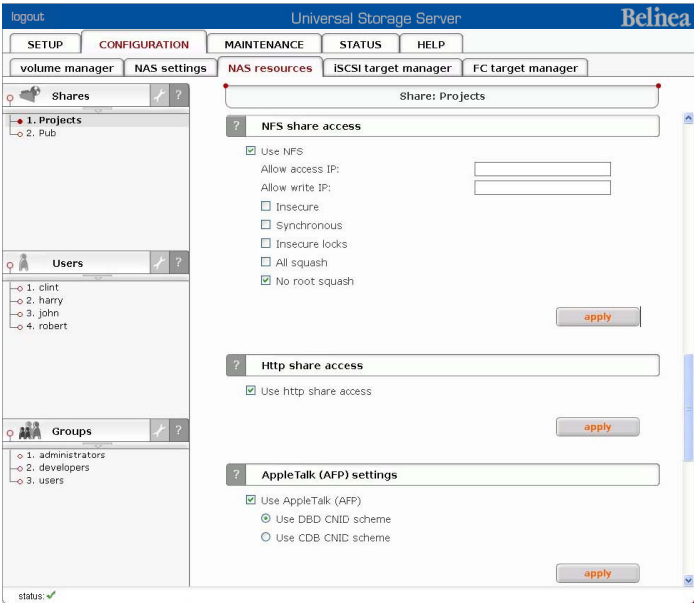


Function: SMB Settings

This function allows you to change the SMB protocol settings for this share. Please check Read only to restrict the access to read-only operation. Uncheck Visible to hide the share in the browse list. Select Guest to allow anonymous access to the share. Select Users with password to enforce user authentication.

Using "Users share access (SMB/FTP/AFP)" and "Groups share access (SMB/FTP/ASP)" you can set the access to the shares for available users and/or groups.


logout
Universal Storage Server
Belinea
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
volume manager
NAS settings
NAS resources
iSCSI target manager
FC target manager
Shares
1. Projects
2. Pub
Users
1. clint
2. harry
3. john
4. robert
Groups
1. administrators
2. developers
3. users
Share: Projects
Users share access (SMB/FTP/AFP)
Available users:
Granted access users:
Search
clint
harry
robert
john
apply
Groups share access (SMB/FTP/AFP)
Available groups:
Granted access groups:
administrators
developers
users
status:


logout
Universal Storage Server
Belinea
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
volume manager
NAS settings
NAS resources
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Http share access
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AppleTalk (AFP) settings
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Function: NFS share access
Using this function, you can activate access to a particular share via NFS. In order to activate NFS on your b.center, you must enable NFS in “SETUP” > “NAS settings” > “NFS settings”.

In order to mount a share via NFS, please use following syntax:

- mount -t nfs IP_addr:/share/share_name /local_mount_point

✎ *Note*
The keyword “share” must always be added to the syntax.

In order to mount a share in synchronous mode please use:

- mount -t nfs IP_addr:/share/share_name /local_mount_point -o sync

In order to mount a share in asynchronous mode please use:

- mount -t nfs IP_addr:/share/share_name /local_mount_point -o async

When using synchronous mode, data is not stored in buffer, but transferred immediatley. In asynchronous mode, data is first stored in a buffer and then transferred.

You can use the following NFS option fields:

Allow access IP
Please enter an IP address or address range that is allowed to access the NFS share. You can enter a single IP address or multiple IP addresses separated by semicolon or an IP address range. IP addresses that are not added to the allow write list will have read only access.

Allow write IP
Please enter an IP address or address range that is allowed to write to the NFS share. You can enter a single IP address or multiple IP addresses separated by semicolon or an IP address range.

Insecure
Allows incoming connections to originate from ports > 1024

Synchronous
When this option is enabled, the local file system will wait for the data to be written to the NAS server. NFS performance will be lowered, however it will ensure that the data will be written directly to the NAS server and will not be stored in the system cache.

Insecure locks
Disables authorization of locking requests. Some NFS clients don't send credentials with lock requests and hence work incorrectly with secure locks, in which case you can only lock world-readable files. If you have such clients you can use the Insecure locks option.

All squash
Map all User IDs to nobody user and all Group IDs to nogroup group.

No root squash
Select this option to grant the root user from a client machine the same level of access to the files on the NAS server. Otherwise the root user from a client machine will be mapped to the user nobody on the NAS server.

✎ *Note*
If you leave Allow access IP and Allow write IP fields blank, then all computers in the subnet will have write access to the NFS share. If you set Allow access IP and leave Allow write IP field blank, then the specified computers will have read only access and none will have write access. If you set Allow write IP without Allow access IP, then the specified IP addresses will have write access and all computers in the subnet will have read only access.

- xxx.xxx.xxx.xxx
- xxx.xxx.xxx.xxx;xxx.xxx.xxx.xxx; ....
- xxx.xxx.xxx.xxx/network_prefix_length.

If a host has an entry in the DNS field but doesn't have a reverse DNS entry then the connection to NFS will not work.

Function: Http share access
With this option you can enable HTTP access for the selected share.

In order to access HTTPS-enabled shares via a web browser, please enter one of the following lines in your web browser's address field:

https://SERVER_IP_ADDR:PORT
https://SERVER_NAME:PORT

Example:
https://192.168.0.220:444

✎ *Note*
In order to access your share via a web browser, you need to turn on the option "Enable http share browser" in "CONFIGURATION" > "NAS settings" > "Http share access setup".

Function: AppleTalk (AFP) Settings
Here you can activate the AppleTalk protocol in the network to access shares on the NAS Server.

How to use AppleTalk with the NAS server:

- In "SETUP" > "NAS settings" enable AppleTalk.
- In "SETUP" > "NAS resources" select a share that will be accessed via AppleTalk.
- Enable AppleTalk for this share.

How to connect to the NAS AppleTalk server:

In MAC OS 9:

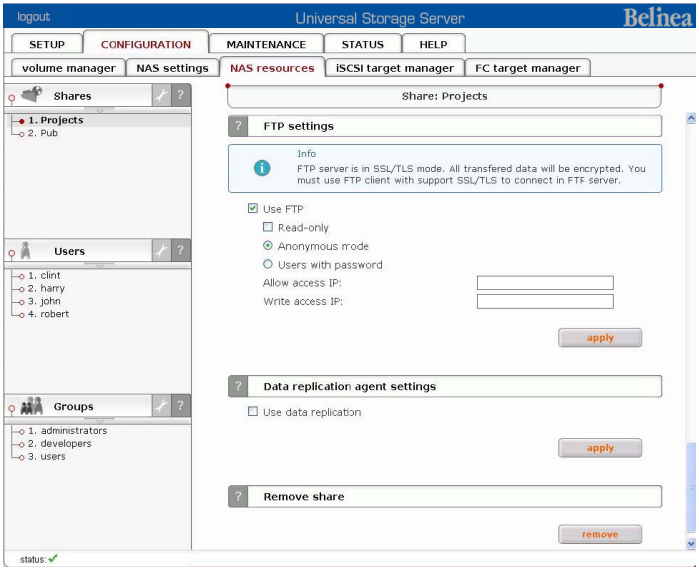
- Open the Chooser (APPLE MENU > Chooser).
- Click on AppleShare.
- If the Server "NAS" does not appear in the fileserver list, click "Server IP address" and enter the NAS server IP address.
- Click "OK" and choose a login type. Enter a user name and password if you want to login as a specified user.
- From the available shares select the ones you want to mount.
- The icons of the mounted shares will appear on the desktop.
- To open the share click on its icon.
- To unmount the share drop its icon onto the trash.

In MAC OSX 10.3:

- Click on the MAC HD, then Applications, then Utilities.
- From Directory Access check if AppleTalk is active. If it is not activate it.
- If the server "NAS" does not appear in the Network list, open a web browser and enter the IP address of the AppleTalk server: afp://192.168.1.3 (very important: "afp://").
- Choose a login type. Enter a user name and password if you want to log in as a specific user.
- If you cannot log in, click on Directory Access/Authentication and change the path to search for authentication information.
- From the available shares select the ones you want to mount.
- The icons of the mounted shares will appear on the desktop.

In MAC OSX 10.3 (alternative procedure):

- Click on "Connect to server" from the Finder (GO submenu).
- Enter: afp://address_ip.
- You can add a link to the AFP server by clicking on the "+" sign. This adds a link to the computer in the Favorite Servers field.
- Choose a login type and enter a password if you want to log in as a specific user.
- From available shares select the ones you want to mount.
- The icons of the mounted shares will appear on the desktop.



Function: FTP Settings

You can enable FTP services for every share separately. You can choose :

- Anonymous,
- Users with password.

Selecting Anonymous mode will enable FTP sharing with anonymous user. For all IPs the access is set to READ+WRITE by default. To change that, activate Allow access IP and Write access IP options. Clicking apply will make the share available over FTP.

To connect to this share, an FTP client software is recommended. However, most web browsers such as Internet Explorer also support FTP. To connect from IE using Anonymous mode, please enter the following line in the address field:

- ftp://<b.center IP>/pub/, (e.g. ftp://192.168.0.220/pub/).

When using an SFTP client, please use:

- ftp://<b.center IP>/share/, (e.g. ftp://192.168.0.220/share/).

Many FTP client programs require a user name and a password to establish a connection. In Anonymous mode the user name is "anonymous" and there is no password (empty field). All anonymous shares are located in the "share" folder. A user connecting from an IP without full access will see all shares but will not be able to see any directories that are prohibited.
For Anonymous login please use your e-mail address as password.

✎ *Note*
Anonymous user will see only files and directories that he owns.

Selecting Users with password mode will enable secure FTP by user and password authorization. Only a few FTP clients support SFTP (SSL/TLS).

Here is a list of the tested software:

- CoreFTP (Windows),
- FileZilla (Windows),
- IgloFTP (Windows and Linux),
- SSLFTP (Linux console client).

When Users with password is enabled, the user has access to the share through the authorized user name and password.

✎ *Note*
If the NAS server uses Windows domain authorization then a short name of the domain, followed by a plus sign must precede the user name, e.g. "DOMAIN+Administrator".

To connect to a share in "Users with password" mode, set the encryption type in the SFTP client to SSL or TLS. All "Users with password" shares are located in the "shares" folder. Users will see only the allowed shares.

✎ *Note*
If you cannot see any directories when connected to the FTP server, please make sure that you have access rights for at least one FTP share. If you still cannot see any directories, please set your FTP client to passive mode.

✎ *Note*
Most FTP clients have bookmarks allowing to set up IP, port home folder, etc. Suggested home folder for Anonymous is "pub" and for Users with password mode is "shares".

Function: Data replication agent settings
This function allows you to configure data replication for a share. In order to enable replication for a share, check the "Use data replication" box.

✎ *Note*
It is recommended to set Login name and Password as well as list the relevant IP addresses in Allow access IPs, because otherwise everyone will have access to the share.

Function: Remove share
Click the "remove" button to remove the share.

✎ *Note*
No data (directories and files) will be deleted on the logical volume. You can re-create a deleted share at any time: Simply go to the NAS resources menu, click Shares (as for creating a new share) and browse for the folder you want to share. Finally please enter your share name in the Name field and click the "apply" button. Now the deleted share will be displayed again under My Network Places.

In "Workgroup internal LDAP" mode, the category "Users" serves as a data entry mask for user accounts. Basically, the process is the same as creating shares. Enter new users here and assign each of them a name and a password. For security reasons, you have to enter the passwords twice.

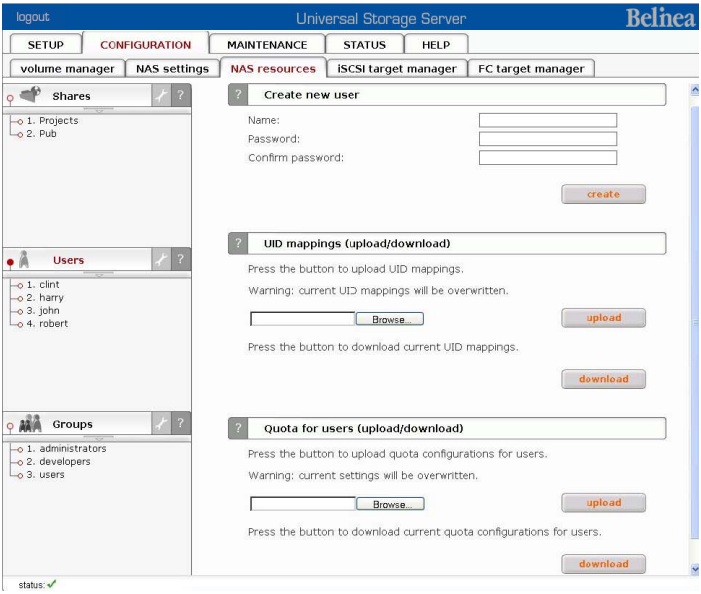
A User name cannot:

- Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ' " ., ; % | < > ? / \ = `
- Begin or end with a space.

A Password cannot contain:

- The following characters: ' " `
- Spaces.

✎ *Note*
If a user forgets his/her password, there is no way to retrieve it. You can only set a new password.



Function: Create new user
To create a user, enter a user name and password, retype the password and click the create button.

✏ *Note*
A User name cannot:

- Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ' " ., ; % | < > ? / \ = `
- Begin or end with a space.

A Password cannot contain:

- The following characters: ' " `
- Spaces.

If a user forgets his/her password, there is no way to retrieve it. You can only set a new password.

Function: UID mappings (upload/download)
This function allows you to upload and download UIDs (user IDs).
Using this function you can change a lot of user IDs at one time.

To upload UIDs:

- In the resources menu create share settings (on lv00).
- Copy the configuration file uid_mappings.csv (format: user_name;uid) to the settings folder. This file should be in UTF-8 encoding.
- Click the "upload" button to import the UID mappings.
- If any error occurs while importing UIDs please check the uid_mappings_import.log file on the settings share.

✎ *Note*
Current UID mappings will be overwritten.

Click the "download" button to download uid_mappings.csv.

Function: Quota for users (upload/download)
This function allows you to upload and download quotas (user quotas).Using this function you can change a lot of user quotas at one time.

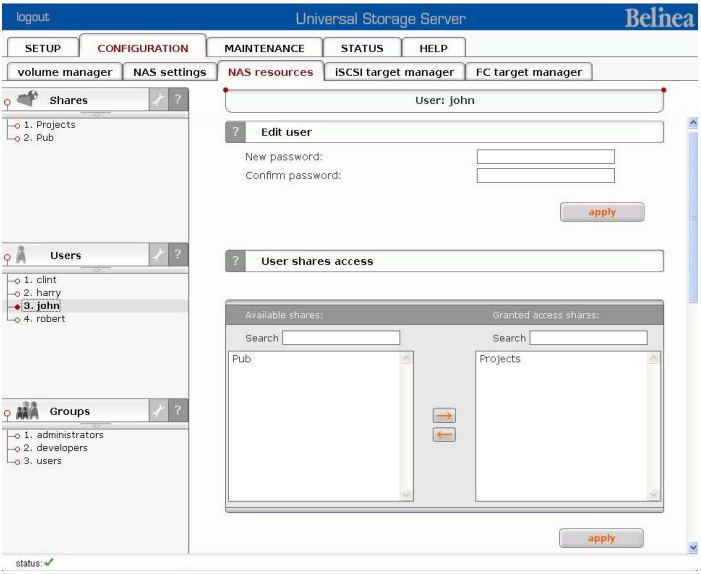
To upload quotas:

- In the resources menu create share settings (on lv00).
- Copy the configuration file quota_users.csv (enconding: UTF-8; format: user_name; hard_quota-in kbytes) to the settings folder.
- Click the button to upload quota configurations.
- If any error occurs while uploading quotas please check quota_users_import.log in the settings folder.

✎ *Note*
Current settings will be overwritten.

Click "export" to download quota_users.csv.

After clicking a name, e.g. "john", all available functions for user settings will be displayed.



Function: Edit user
To change the user's password, enter and confirm the new password, and click the "apply" button.

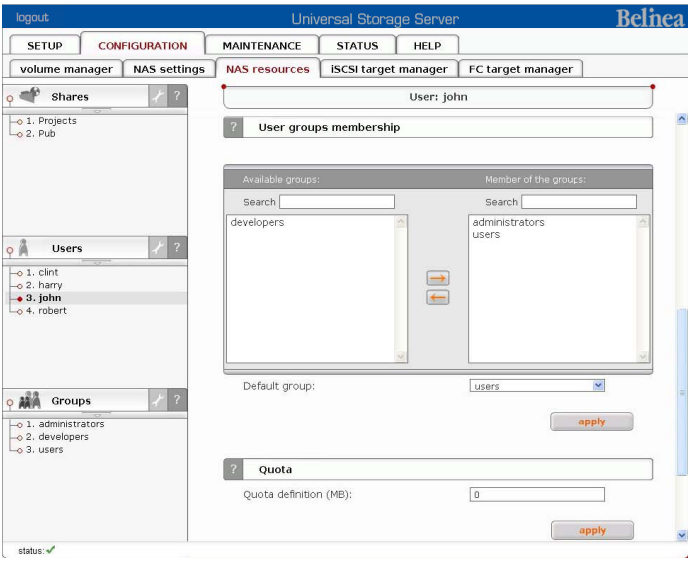
A Password cannot contain:

- The following characters: ' " `
- Spaces.

Function: User shares access
Grant the user access to a share by selecting the share and clicking the → button. To remove access for the user, select the share and click the ← button to remove it from the Granted access shares list.

Note
You can use the following keyboard keys in these lists (first set focus to the desired list):

- Home: Jump to first item.
- End: Jump to last item.
- Shift + arrow key: Multi-select.
- Letter key: Jump to the first item starting with this letter.



Function: User groups membership

When connected to the local LDAP users and groups database this function allows you to view and change user groups membership.

To add the user to a group or groups select group/groups from the Available list and click the → button. To remove the user from a group or groups select them from the Member of list and click the ← button.

Wen connected to an external users and groups database you can check the groups of which the user is a member.

Note

You can use the following keyboard keys in these lists (first set focus to the desired list):

- Home: Jump to first item.
- End: Jump to last item.
- Shift + arrow key: Multi-select.
- Letter key: Jump to the first item starting with this letter.

Function: Quota

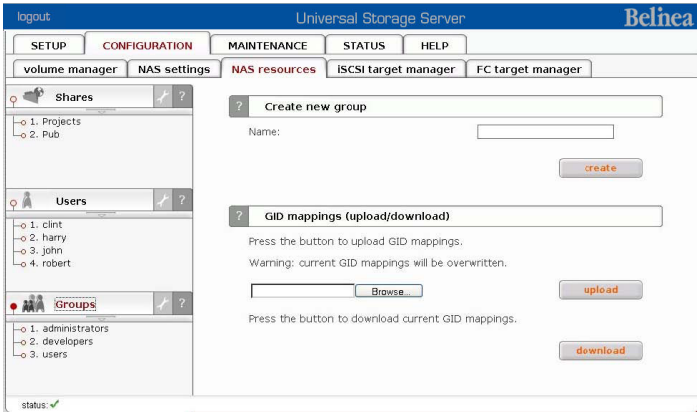
You can assign a quota to limit the space the user may use on shares he/she has access to. To remove any limitation, set the quota to 0.

Function: Remove user

Click the "remove" button to remove the user from the system. All the files the user has ownership of will be preserved.

Groups

In “Workgroup internal LDAP” mode, you can define groups consisting of different users. In addition, you can assign certain access rights to these groups. By clicking on “Groups,” a data entry mask will open up, allowing you to create a new group. Assigning the access rights is done the same way as for users (see above).
In the modes “Workgroup (external LDAP)” and “Windows (PDC)” and “Windows (ADS)” the groups are automatically synchronized with the external server.



Function: Create new group

To create a group, enter the name and click the create button.

✎ *Note*

A Group name cannot:

- Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ' " . , % | < > ? / \ = `
- Begin or end with a space.

After clicking the group name, e.g. “administrators”, all available functions for group settings will be displayed.

Function: GID mappings (upload/download)
This function allows you to upload and download GIDs (group IDs). Using this function you can change a lot of group IDs at one time.

To upload GIDs:

1. In the resources menu create share settings (on lv00).
2. Copy the configuration file gid_mappings.csv (format: group_name;gid) to the settings folder. This file should be in UTF-8 encoding.
3. Click the "upload" button to upload the GID mappings.
4. If any error occurs while importing GIDs please check the gid_mappings_import.log file on the settings share.

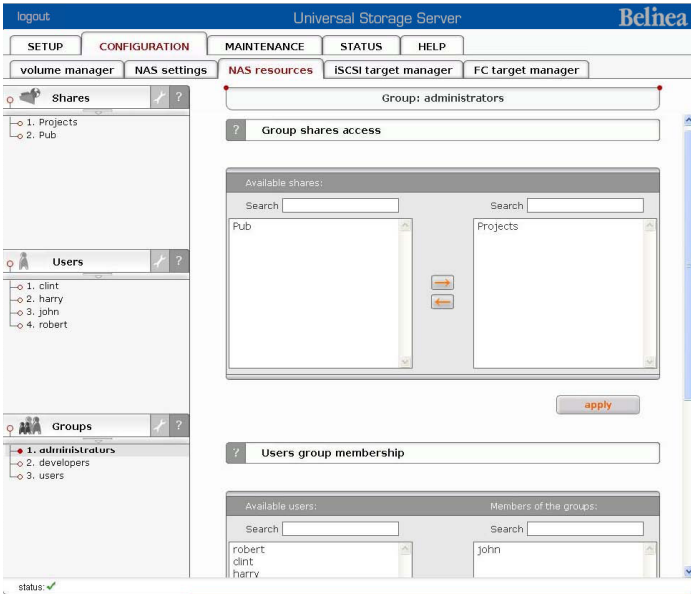
✎ *Note*
Current GID mappings will be overwritten

Click the "download" button to download gid_mappings.csv.

Function: Group shares access
Here you can grant this group access to shares by selecting the shares and clicking the → button. To remove access to specific shares for this group, select the shares and click the ← button.

✎ *Note*
You can use the following keyboard keys in these lists (first set focus to the desired list):

- Home: Jump to first item.
- End: Jump to last item.
- Shift + arrow key: Multi-select.
- Letter key: Jump to the first item starting with this letter.



Function: Users group membership

When connected to the local LDAP users and groups database this function allows you to view and change users group membership.
To assign users to this group, select users from the “Available users” list and click the → button. To remove a user from the group, select the user from the Members list and click the ← button.

When connected to an external users and groups database you can check which users are members of this group.

Function: Remove group

Click the “remove” button to remove the group.

iSCSI target manager

Function: Create new target

To create a target assign a name or leave the "Target Default Name" option checked.

Name

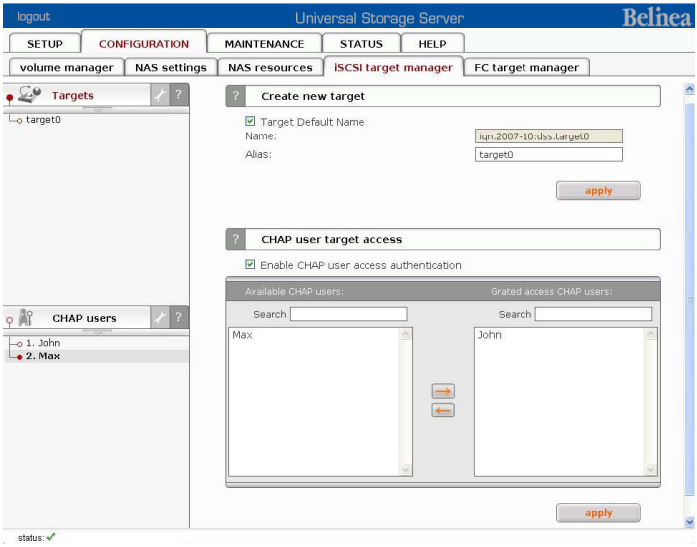
A Target name can contain alphanumeric characters and: ' . ' ' : ' ' - '. A target name is considered case-insensitive. Every character entered will be converted to lower case. No spaces and no underscores are permitted.

Alias

An Alias is a name under which the target will be displayed in the Targets tree. The same naming rules apply for the alias as for the name.

✎ *Note*

The server name will be used as a part of the default target name.



Function: CHAP user target access

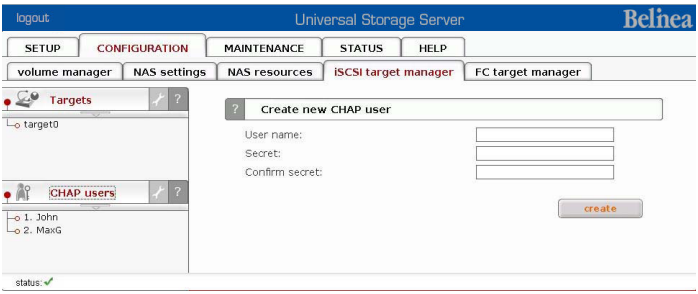
Add CHAP users that are granted access to this target.

Note

You can use the following keyboard keys in these lists (first set focus to the desired list):

- Home: Jump to first item.
- End: Jump to last item.
- Shift + arrow key: Multi-select.
- Letter key: Jump to the first item starting with this letter.

If you enable CHAP user access authentication but do not select any users to have access, then nobody will have access to the Target.



Function: Create new CHAP user

To create a CHAP user, enter a name and password, retype the password and click the create button.

Note

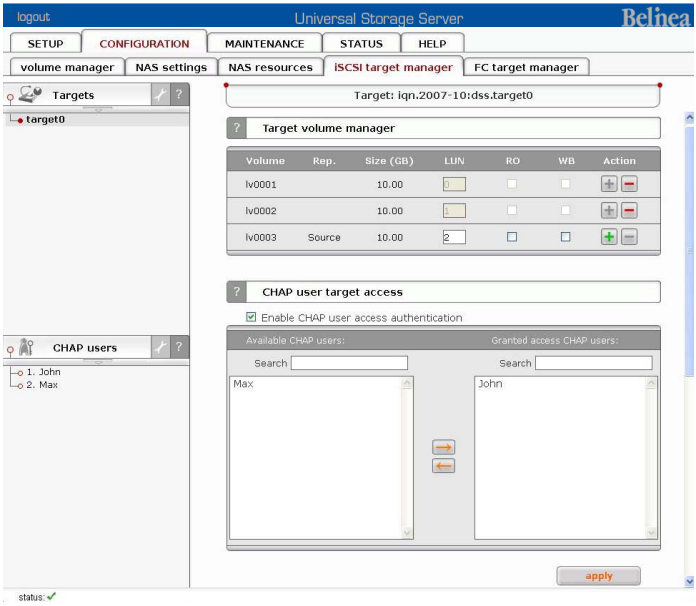
A CHAP user name cannot:

- Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ' " ., % | < > ? / \ = `
- Begin or end with a space.

A Password:

- Cannot contain the following characters: ' " `
- Cannot contain spaces.
- Must consist of 12–16 characters.

If a CHAP user forgets his/her password, there is no way to retrieve it. You can only set a new password.



Function: Target volume manager

This function is used to manage free and already assigned target volumes and snapshot volumes. To assign a volume to the target click the "Add" button associated with that volume. To remove an already assigned volume from the target click "Remove". In certain circumstances you may need to adjust the LUN of the volume you are about to add. Normally, however, the LUN assignment is taken care of automatically. You should leave the default values.

RO

Read Only. If this is turned on, the LUN will be displayed as a write protected disk. To switch the RO option on if it is disabled, you must first remove the volume from the target and then add it again setting the flag as desired. Target volumes and snapshots are not read only by default (RO unchecked).

WB

Write-back cache. This functionality improves performance of data write. A write is acknowledged as completed as soon as the data is stored in the disk cache. At a later point in time the disk cache commits the write to the disk.

If RO and WB are disabled (RO and WB unchecked) then Write-through cache is used by default. This means that writes are not stored in the cache. Instead, all writes are acknowledged after they are committed to the disk.

Function: CHAP user target access
Add CHAP users that are granted access to the Target Server.

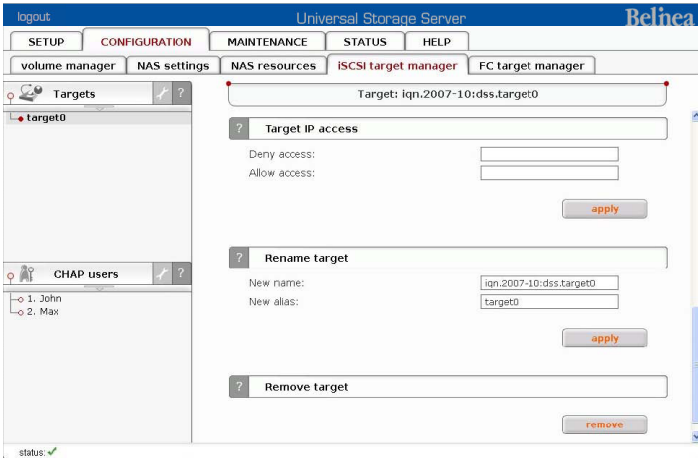
✎ *Note*
You can use the following keyboard keys in these lists (first set focus to the desired list):

- Home: Jump to first item.
- End: Jump to last item.
- Shift + arrow key: Multi-select.
- Letter key: Jump to the first item starting with this letter.

If you enable CHAP user access authentication but do not select any users to have access, then nobody will have access to the Target.

Function: Target IP access
You can assign network classes or specify individual IP addresses that are permitted or denied access to the target. Entries should be delimited by semicolons. If no entries are present in the Denied access or Allowed access fields, everyone is permitted to access the target. Specifying at least one entry in the Allowed access field excludes all other clients from accessing the target. If you specify at least one entry in the Denied access field, then all CHAP users from this network address(es) are denied access to the target. If you specify any IP address in the Allowed access field, CHAP users from that address are allowed to access the target even if the same address has been specified in the Denied access field. If you fill in only the Allowed access field then the Denied access field will be automatically be filled in with 0.0.0.0/0.

✎ *Note*
Please note that already active sessions will persist regardless of the newly applied settings. You can ensure that the settings are enforced immediately by resetting the connections manually via MAINTENANCE > shutdown > iSCSI connection reset. Keep in mind that any unsaved client data might get lost.



If you enter a network range in long form, it will be converted automatically to short form.

Examples:
Denied access: 0.0.0.0/0
Allowed access: 192.168.2.30/24; 192.168.3.45

These settings deny access from every IP address or network range except for those in the Allowed access field; only these are granted access to the target.

Denied access: 192.168.0.0/16
Allowed access: 192.168.2.30; 192.168.10.230; 192.168.30.0/24

These settings deny access to any IP addresses from the network 192.168.0.0/16. Access is granted for the IP addresses 192.168.2.30, 192.168.10.230, all IP addresses from the network 192.168.30.0/24 and all IP addresses that have not been denied in Denied access field.

Function: Rename target

Provide a new target name. A target name is considered case-insensitive. Every character entered will be converted to lower case.

Function: Remove target

This function removes all volumes from the target.

✏ *Note*

Please note that the data stored on the volumes is not automatically removed. You can assign the volumes to different targets and still see the data. Please remove the data prior to removing the target in order to prevent leakage of sensitive or classified information.

MAINTENANCE

The Maintenance tab contains settings and functions pertaining to general management operations.

Shutdown

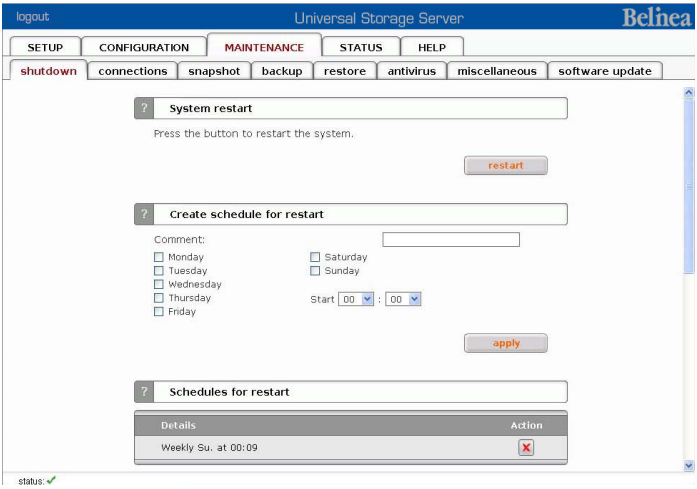
Function: System restart
This function allows you to restart your system.

Function: Create schedule for restart
Here you can create a new schedule task for restarting your system.

Comment
You can add a comment for the system restart.

Time select
Select a time when the restart task will be started.

Function: Schedules for restart
Here you can see all restart schedules.



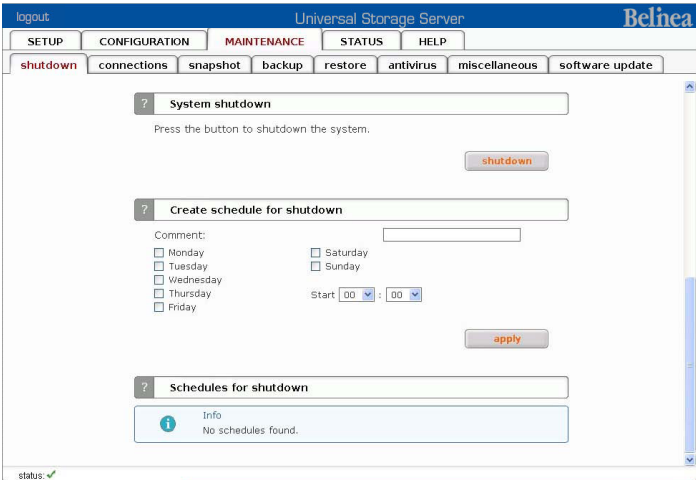
Function: System shutdown
Using this function, you can shut down the server.

Function: Create schedule for shutdown
Here you can create a new schedule task for shutting down your system.

Comment
You can add a comment for the system shutdown.

Time select
Select a time when the shutdown task will be started.

Function: Schedule for shutdown
Here you can see all shutdown schedules.



Connections

Function: NAS connections reset
This function forces an immediate broadcast over your network to announce changes you made to shares or access rights. It is dedicated to SMB and FTP connections. You can check or uncheck the corresponding check boxes.

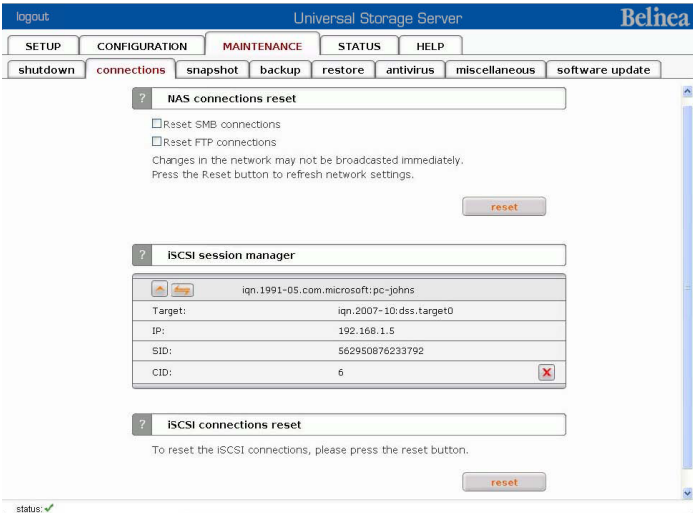
This function disconnects all users connected to the shares over the specified protocol, which may lead to data loss if any files are open.

Function: iSCSI session manager

This function presents all current connections to any iSCSI targets. You will find here information like: Target name, IP address, CID (connection ID) and SID (session ID).

Note

You can cancel a connection to an iSCSI target, but the initiator may automatically reestablish the connection if it is enabled on the initiator side.
In order to block the initiator form reconnecting to the target you have to deny the IP address in SETUP > iSCSI target manager > Targets > target[nr] > Target IP access.



Function: iSCSI Connection reset

This function presents all current connections to any iSCSI targets. You will find here information like: Target name, IP address, CID (connection ID) and SID (session ID).

Note

You can cancel a connection to an iSCSI target, but the initiator may automatically reestablish the connection if it is enabled on the initiator side.
In order to block the initiator form reconnecting to the target you have to deny the IP address in SETUP > iSCSI target manager > Targets > target[nr] > Target IP access.

Snapshot

Function: Snapshot tasks

Using this function you can manually activate (start) or deactivate (stop) snapshots. Click a snapshot alias on the left-hand panel to define the schedule for the snapshot.

To view snapshot details click the down arrow button:

LV
Name of the logical volume the snapshot is assigned to.

Size
Size of the space reserved for the snapshot (point-in-time) data in GB.

Status
Status of the snapshot can be:

In use
Snapshot is currently used:

- By an active backup or replication task.
- Created by a schedule or created manually.

Unused
Snapshot is available for backup or replication tasks as well as for a schedule or manual start.

Active
Snapshot has been activated by a backup or replication task or created by schedule or manually. If the snapshot was created by a backup or replication task, the point-in-time data is available for that task. If the snapshot was created by a schedule or manually, the point-in-time data can be accessed via:

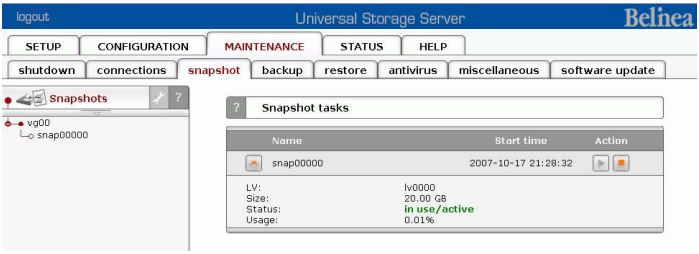
- NAS share (if the snapshot was assigned to a NAS volume)
- iSCSI target (if the snapshot was assigned to an iSCSI volume).

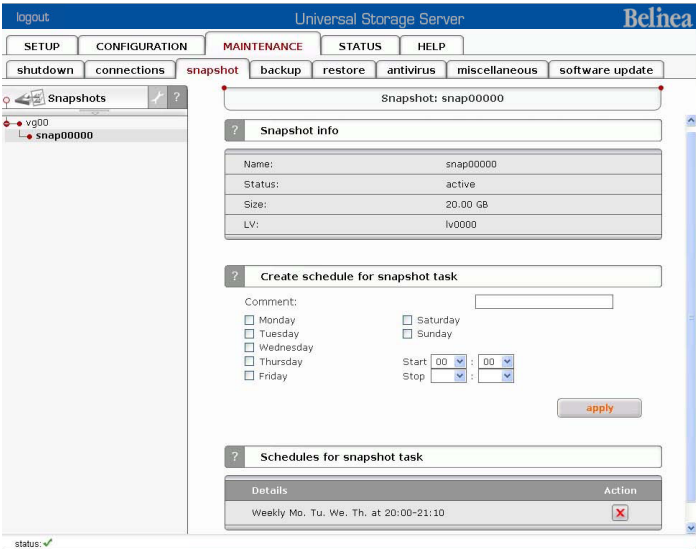
Inactive
A snapshot becomes inactive when the reserved space reaches 100%. Be aware that this will prevent access to the point-in-time data! Please click the "stop" button in order to reset to "unused".

Usage
Shows the percentage of the reserved space which is in currently in use. The percentage is equal to the amount of user data changes on the volume. Once this reaches 100%, the snapshot status turns to "in use/inactive" and the point-in-time data cannot be accessed any more. In this case, click the "stop" button in order to remove the inactive snapshot.

Note

- Please do not manually start or create a schedule for a snapshot that is already assigned to backup or replication tasks. This will block the backup or replication tasks as they are specifically assigned to activate the snapshot during the process.
- The snapshot employs copy-on-write technology. The more active snapshots you have, the lower will be the write performance of the volume. It is recommended to have not more than 2–3 active snapshots per volume.
- Snapshots can not be activated on an inconsistent volume. Inconsistent volumes exist on the destination system while volume replication is initializing. Once initialization is completed, the volume will be consistent and the snapshot can be activated.





Function: Snapshot info
Here you can see information on the selected snapshot.

Name
Name of snapshot.

LV
Logical volume to which the snapshot is assigned.

Status
Status of the snapshot. Can be one of the following:

Active
Snapshot is in active state.

Inactive
Snapshot is inactive, probable reason: overflow.

Unused
Snapshot is currently unused.

Size
Size of snapshot.

Function: Create schedule for snapshot task
Here you can create a schedule for the selected snapshot task.

Comment
You can add a comment to the snapshot schedule.

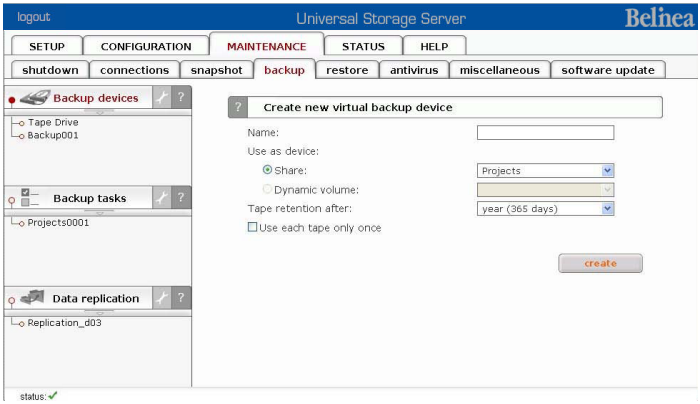
Time select
You can start the snapshot creation immediately by selecting "Now" from the Time select drop-down list or add it to the schedule.

Function: Schedules for snapshot task
Here you can see all schedules created for a snapshot task.

Backup

Backup devices

Here you can view a list of all backup devices. Click on a device name to edit the device settings, create a new tape for the device, manage tapes or remove the device. When a tape backup device (physical device) is connected, a "Tape Drive" entry will appear on the backup devices tree.



Function: Create new virtual backup device

In order to store a backup of the data on a virtual tape please create a virtual backup device. This device will be used as a backup destination in the backup task setup.
You have to:

- Provide a name for the device.
- Select the share where the virtual backup device will be stored.

Note

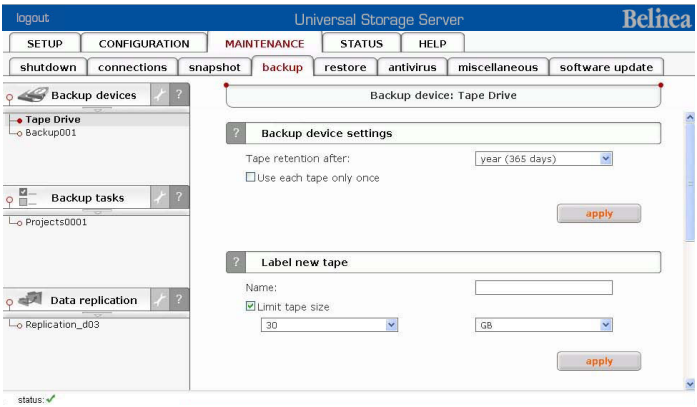
It is recommended to create a dedicated share for each virtual backup device.

- Set the retention time for the tape.
- If you want to make only one backup on each tape, select Use each tape only once.

Click the "Create" button to create the new backup device.

Next steps:

- Once the new virtual backup device has been created, click its alias in the left panel and create virtual tapes in the Create new tape function.
- Then create a new backup task.



Function: Backup device settings

Here you can edit the settings for the selected backup device.

Tape retention
Time after which the tape will be overwritten from the beginning.

Use each tape only once
Means that each backup will be made on one tape.

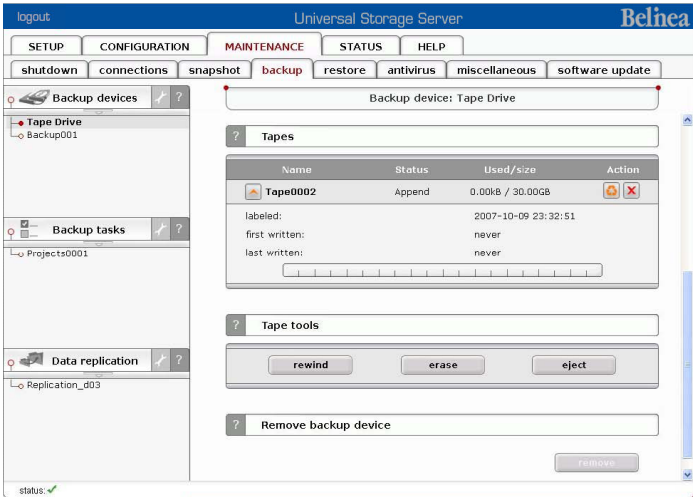
Function: Label new tape

Using this function you can label the new tape that will be used for the backup.
In order to label a new tape:

- Enter a tape name.
- Select a slot.
- Optionally you can limit the tape size.
- Click "Apply".

Note

Make sure to insert tapes in the streamer device in proper order, otherwise tapes may have the wrong slot number assigned after backing up.



Function: Tapes

Here you can view information on all tapes used with the selected backup device and manage them.
This function provides the following information:

Name
Name of the tape.

Status
Status of the tape. Status can be one of following:

- Full – Tape is full and will not be used for backup until retention time is over.
- Append – New backups will be written to the and of the tape.
- Recycle – The tape will be set to this state when the tape status has been set to purged and there is no other appendable tape available. The tape will be used for new writing from the beginning of the tape (old data will be deleted).
- Purged – Will show up when tape retention time is over (old data is still on tape).
- Error – The tape will not be used because of errors on the tape.
- Used – The tape has been set as used once only and cannot be used for appending any more.
- Busy – The tape is currently used for writing a backup.

Used/size
Shows how many MB of data have been written to the tape and how many MB of data can be written to that tape.

Action
Action that can be performed on the tape:

- Show more info on the tape.
- Manually set the tape to purged status.
- Remove the tape.

Function: Tape tools

This function provides tools to manage your tape device. Tape tools:

- Tape rewind
- Tape erase
- Tape unload / eject
- Tape load

Select tape from
Here you can select from which drive or slot the tape will be used. If the tape is in a drive then it will be described as follows: Drive drive_nr:slot_nr:bar_code_name – Example: Drive 0:1:Tape 1. If the tape is in a slot then it will be described as follows: Slot slot_nr:bar_code_name – Example: Slot 1:Tape 1.

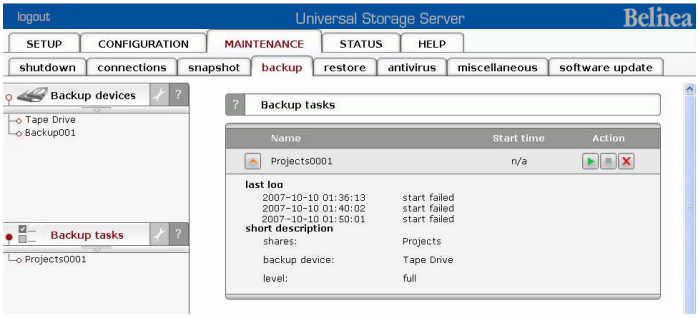
Note
When a tape library device is connected the tape unload tool will appear. If a streamer device is connected then the tape eject tool will appear.

Function: Remove backup device

This function removes the selected backup device.

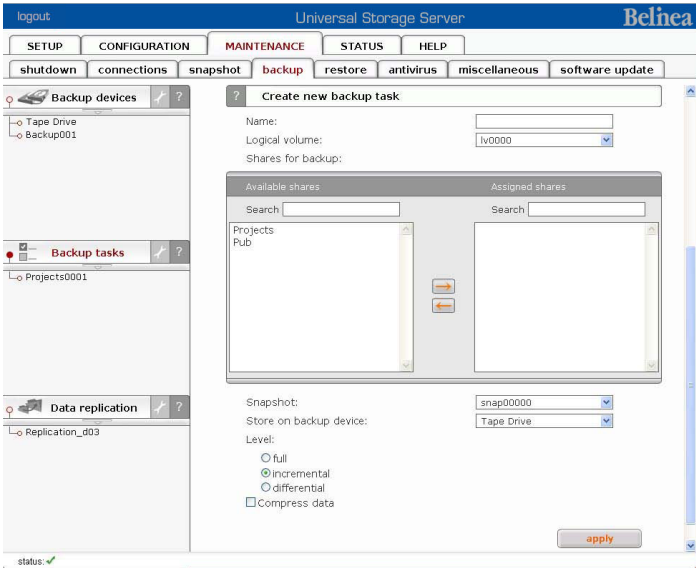
Backup tasks

Here you can view a list of all backup tasks you created. Click on a backup task name to see more information about it.



Function: Backup task

Here you can run, stop or delete a backup task. All previously created tasks will be displayed.



Function: Create new backup task

Here you can create a new backup task.

In order to create a backup task:

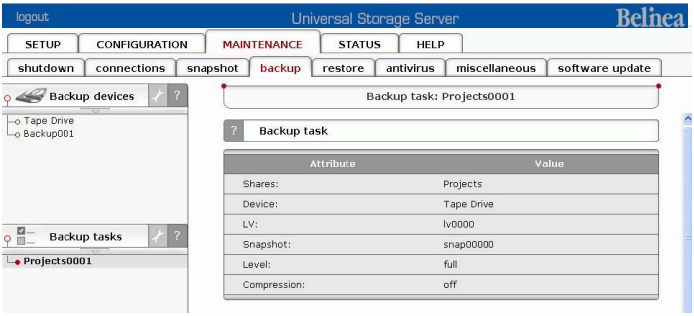
- Enter a task name.
- Select a Logical Volume.
- Select Shares for the backup.
- Select the Snapshot from which the backup will be taken.
- Select the backup device to which the backup will be written.
- Select a backup level.
- If you want to compress the data on the backup, select the Compress data option.

Backup levels:

Full
This will backup all your data.

Incremental
This will backup only new data.

Differential
This will backup all new data since last full backup.

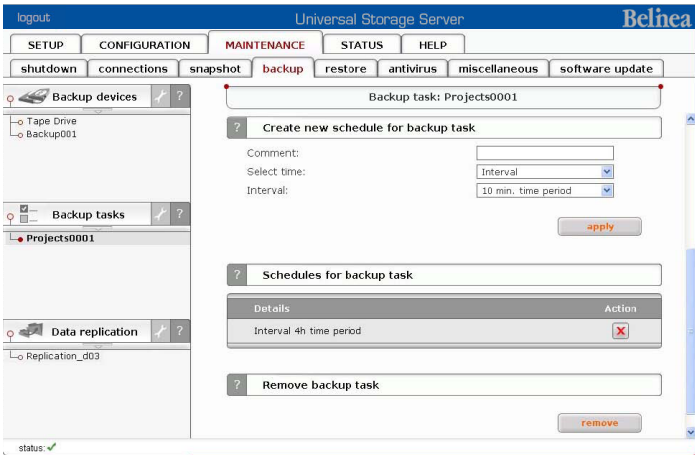


Function: Create new schedule for backup task
Here you can create a new schedule for the selected backup task.

Comment
You can add a comment to the backup schedule.

Time select
You can start the backup task immediately by selecting "Now" from the Time select drop-down list or add it to the schedule.

Interval
Select the time period at which the backup will run.



Function: Schedules for backup task
Here you can see information on all schedules created for the selected backup task. You can also delete any schedule by clicking the "delete schedule" button.

Function: Backup task remove
Here you can remove the selected backup task.

Data replication
Here you can view a list of all data replication tasks.

Function: Create new data replication task
This function allows you to create a new data replication task. Data can be replicated as source or destination at the same time.

Task name
Please enter a task name.

Source share
In order to set the source share, select it from the drop-down list and enter the Destination IP where the share will be replicated.

Snapshot
Snapshot assigned for data replication.

Destination share
Select the destination share from the drop-down list and enter the destination agent login and password.

Dest. agent login
Enter destination agent login.

Dest. agent password
Destination agent password.

Log replication errors
Turn this option on to log replication errors.

Replicate whole files
If this option is turned on, then all parts of a file will be replicated. Otherwise only changed parts of a file will be replicated. It is recommended to turn this option on if the network speed is faster than the local partition write speed.

Use ACL
Turn this option on if you want to have files replicated with Access Control List permissions.

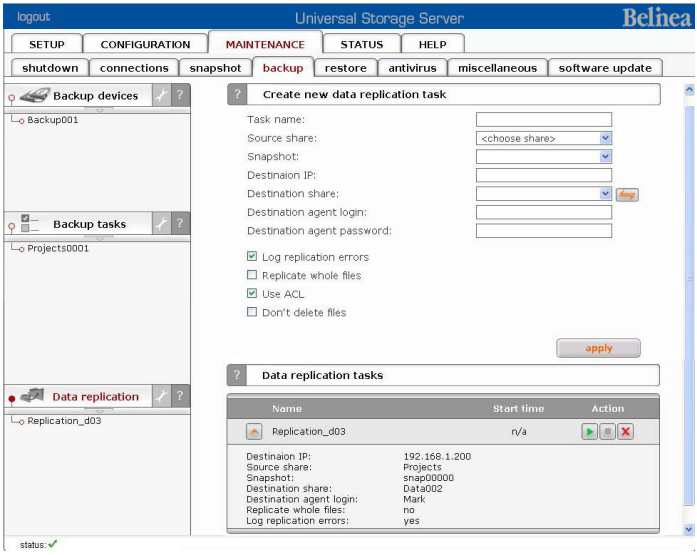
Don't delete files
If this option is disabled, all files on the destination that don't exist on the source will be deleted. If you want to keep these files you have to enable this option.

✏ *Note*

In order to set a share as destination, the Data replication agent needs to be activated in Setup > NAS settings, then the replication option for each share should be enabled. There is no need to enable the Data replication agent if replication will be set as source only.

It is not possible to perform data replication and backup at the same time. Backup has higher priority than data replication. Data replication will be stopped if it has been se tup for the same time as a Backup if using snapshots from the same Logical Volume. A snapshot error will be displayed in the Data replication status because snapshots can not be used twice at the same time if they are set to the same Logical Volume.

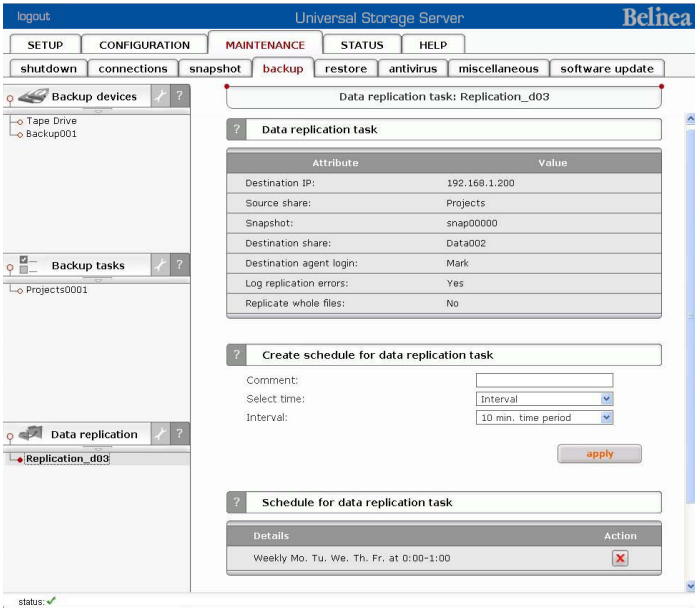
In order to perform data replication over the internet the firewall port 873 must be opened.



Function: Data replication task

This function displays the following information on the selected data replication task:

- Destination IP
- Source share
- Snapshot
- Destination share
- Log replication errors info
- Replicate whole files info.



Function: Create schedule for data replication task
Here you can create a schedule for the selected data replication task.

Comment
You can add a comment to the replication schedule.

Time select
You can start replication immediately by selecting “Now” from the Time select drop-down list or add it to a schedule.

Interval
Select the time period at which the replication will run.

Function: Schedule for data replication task
Here you can manage all schedules created for the selected data replication task.

Restore

Function: Backup restore tasks

Using this function you can run, stop or delete backup restore tasks.
Each task is described by:

Name
Name of restore task.

Start time
Time when restore task has been started.

Action
Action that can be performed on restore task.

Additional task info:

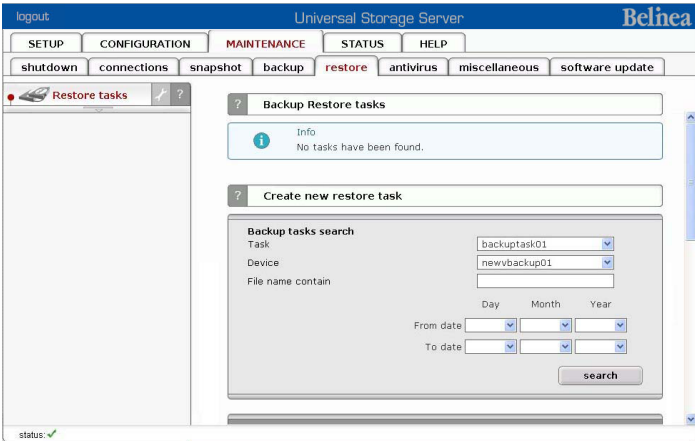
Last log
Shows action logs.

Short description

Device
Describes if task is running on virtual drive or Tape drive device.

Destination share
Name of destination share where data will be restored.

Jobs
Number of running jobs from this task.



Function: Restore from backup
Here you can restore data from a backup you created previously.

In order to restore data from a backup:

- Select the backup to restore.
- Select the share to which the backup will be restored.
- Choose overwrite options.
- Click the “apply” button to start the restore process.

For each backup the following information is displayed:

Files
Number of files in the backup.

Size
Total size of data in MB.

Required tape(s)
List of tapes required for restoring.

Function: Create new restore task
Here you can search for backup tasks and create new restore tasks for the selected backup tasks. Search is available by:

Task
Task name.

Device
Name of backup device.

File name contains
Search for backup tasks by names of files included in the backup. Wildcards are allowed. For example, searching for “M???” will list all backup tasks containg files with a 4-character name starting with the letter M. Searching for “M*” will list all backup tasks containing file names starting with the letter M without regard to the length of the file name. A file name cannot start or end with a space and cannot contain the following characters:
` / ; " $ % ! ~ @ > < = + ^ # & \ ‘ : ,

From date, To date
Date of the backup task creation. From date should be smaller or equal to To date. At least one of these fields must contain a full date.

If you don't select any search option, then all restore tasks will be shown.

Every backup task in the results will be described by:

Name
Backup task name.

Date
Date of backup task creation.

Device
Backup device name.

Details
Additional details.

Files
Number of files in the backup.

Size
Size of backup.

Required tape(s)
Tapes on which backup is stored.

In order to create a new restore task:

- Select the backup task(s).
- Enter a restore task name.
- Select the share to which the backup will be restored (restore to).
- Choose overwrite options.
- Select the option Run immediately after creation if you want to run the restore immediately after the task creation.
- Click the apply button.

Antivirus

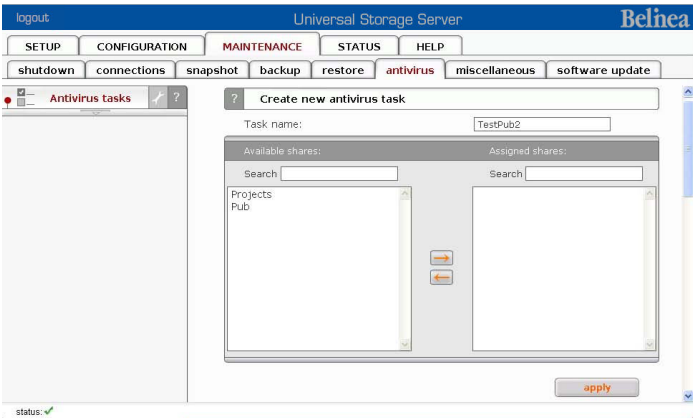
Function: Create new antivirus task

Here you can create a new antivirus scan task.

- Enter a task name.
- Select the shares to be scanned.
- Click “apply” to create a task.

✎ *Note*

Antivirus doesn’t scan archives protected by passwords.

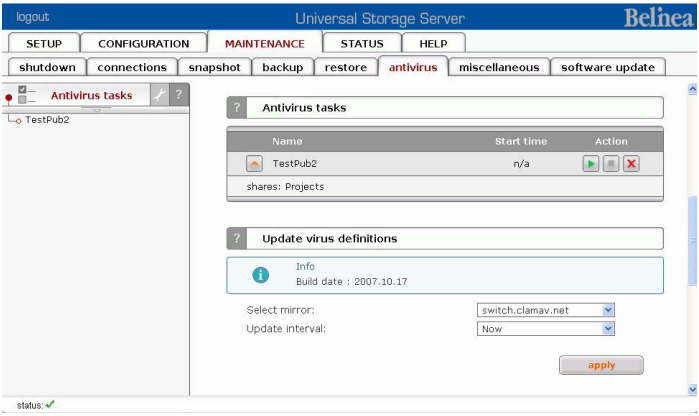


Function: Antivirus tasks

Here you can run, stop or delete an antivirus task. All previously created tasks will be displayed here.

Function: Update virus definitions

Using this function you can update the virus definitions. Select the mirror from which the definitions will be downloaded. Select when the update should take place. If you select “now”, the update will take place immediately. Otherwise the update will take place immediately and as selected.

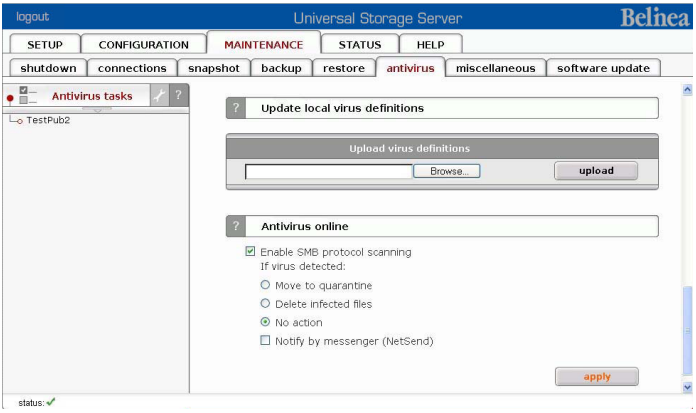


Function: Update local virus definitions

Using this function you can upload a virus database. In order to do this:

- Click the "browse" button and select the database file which should have been downloaded from http://clamav.net/.
- Click the "upload" button.

Two types of database files are supported: "daily" and "main". The database file should have a "cvd" extension.



Function: Antivirus online

This function offers Antivirus online protection for your network protocols. Any files transferred to the server will be scanned.
The Enable SMB protocol scanning feature allows online file scanning via SMB.

Options:

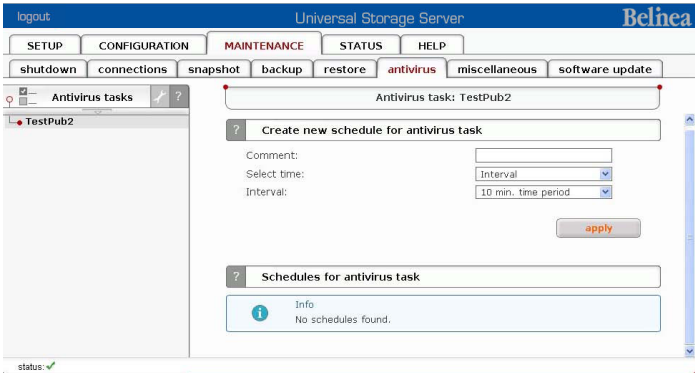
Move to quarantine
Allows moving the infected files to a quarantine share chosen previously. The names of the infected files will be changed by adding the prefix vir- and random characters without extension.

Delete infected files
Allows automatically deleting infected files without warning!

No action
No action will be taken on infected files.

Notify by messenger
Provides quick information about infected files by Windows Messenger (net send).

Note
To verify the information about the infected check the log files. You will find information about the infected files and the viruses.



Function: Create new schedule for antivirus task
Here you can create a new schedule for the selected antivirus task.

Comment
You can enter a comment for the antivirus schedule.

Time select
You can start the antivirus task immediately by selecting "Now" from the Time select drop-down list or add it to a schedule.

Interval
The scan will be performed every "selected time". E.g. if you choose the interval 1 h, the share will be scanned each hour.

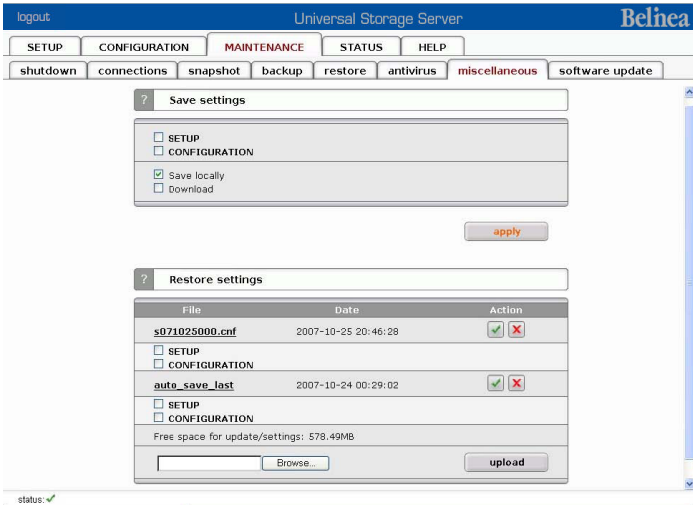
Weekly
The scan will be performed on the selected days at the specified time.

Function: Schedules for antivirus task
Here you can manage all schedules you created for the selected antivirus task.

Miscellaneous

Function: Save settings
With this function you can save the configuration settings.
Select the settings you want to save and click Apply. Settings can be saved locally on the server (saved settings will be displayed in function Restore setting) and/or as a downloadable file. Each time you save the settings locally, a new entry will be created and during restoring you can select the settings to restore.
You can restore the settings using the Restore settings function.

✎ *Note*
Settings will be saved automatically every time the server is restarted or shut down. You will see a new settings file, named auto_save_X / auto_save_last.



Function: Restore settings

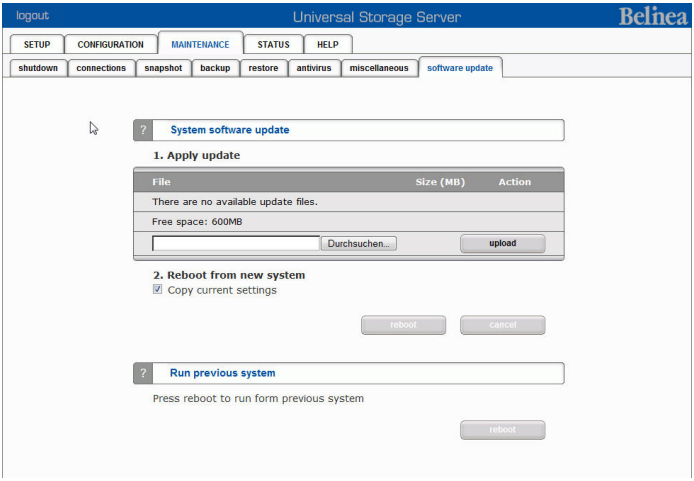
With this function you can restore previously saved configuration settings. You can restore settings from files you saved locally or upload a configuration settings file you downloaded previously. For each entry you can see the configuration file name, date of creation and actions that can be applied. By clicking the Details action button you can select the settings to be restored. To restore the settings click the Restore action button.
You can delete a configuration settings file by clicking the Delete action button. You can download a configuration settings file by clicking its name. In order to upload a configuration settings file you saved previously, browse for a file name and click the Upload button.
You can save the settings using the Save settings function.

✎ *Note*

Settings will be saved automatically every time the server is restarted or shut down. You will see a new settings file in the Restore settings function, named auto_save_X / auto_save_last.

Software update

This function allows you to update the system software.



Function: System software update

This function allows you to update the system software.
After uploading the update file you will see its name and size. For each update file you can perform the following actions:

- View release notes.
- Perform update (Update button).
- Delete update file (Delete button).

After performing the update you can reboot the system with the new software by using the Reboot from new system option. If you want to copy the current settings, check the Copy current settings option. Click the reboot button to reboot with the new software.

Information on the serial number:

- The first three digits are related to the system version. If this value has been changed after an update then the update was a full update and many system components have been updated.
- The 8-digit string after the dot is related to minor updates. Example: If a minor update with new drivers is installed then one of the zeros will be changed to 1.
- The last four digits are related to the build number. Certain critical and minor updates will change this value e.g. when system sources are updated.

✎ *Note*
Some updates require a system restart. In this case you will be informed about the required restart in a confirmation message.

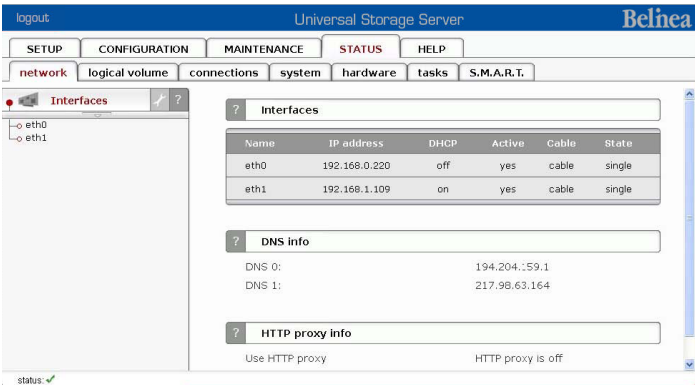
Function: Run previous system
With this function you can run the previous system.

STATUS

This tab provides a quick overview of the most important system parameters of your Belinea b.center. The corresponding options are network, logical volume, connections, hardware, tasks, and S.M.A.R.T.

Network

Function: Interfaces
Here you can view information on the network interfaces. In the table you can see the network interface name, IP address, DHCP information, and cable status.

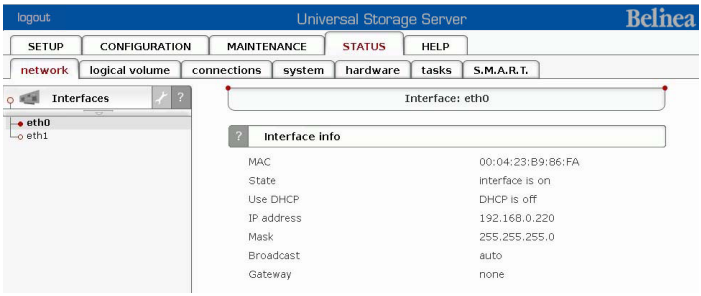


Function: DNS info

Here you can view DNS information related to each network interface.

Function: HTTP proxy info

Here you can view HTTP proxy information. You can see if a proxy is enabled and the assigned HTTP proxy IP address.



Function: Interfaces info

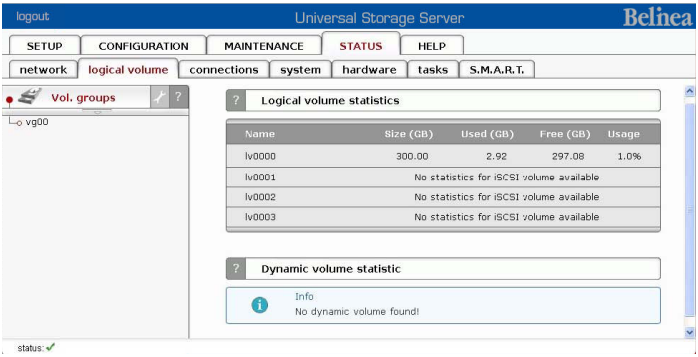
This function displays the following information on the selected network interface:

- MAC address
- State
- DHCP status
- IP address
- Mask
- Broadcast address
- Gateway address

Logical volume

Function: Share volume statistics
This function displays statistical information on the share volumes.

Function: Dynamic volume statistics
This function displays statistical information on the dynamic volumes.



Function: Logical volume statistics
Here you can see the following information on the selected share volume:

Usage
Used space (in percent) on the share volume.

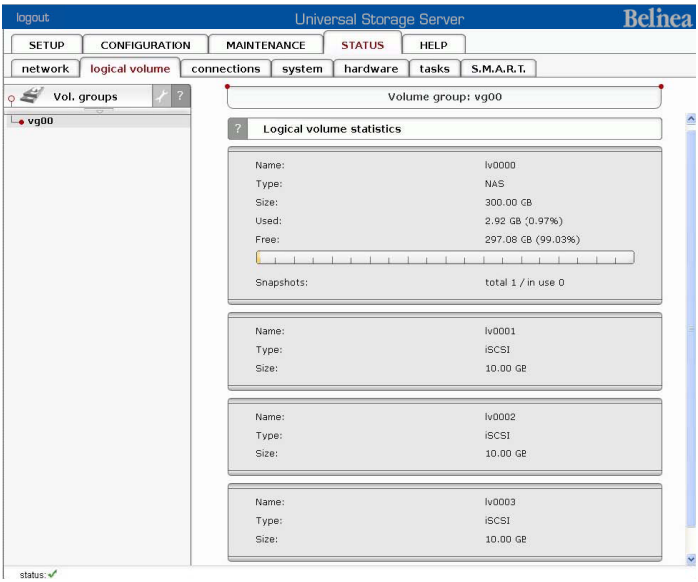
Size
Size of the share volume.

Used
Storage space currently in use on the share volume.

Available
Available space on the share volume.

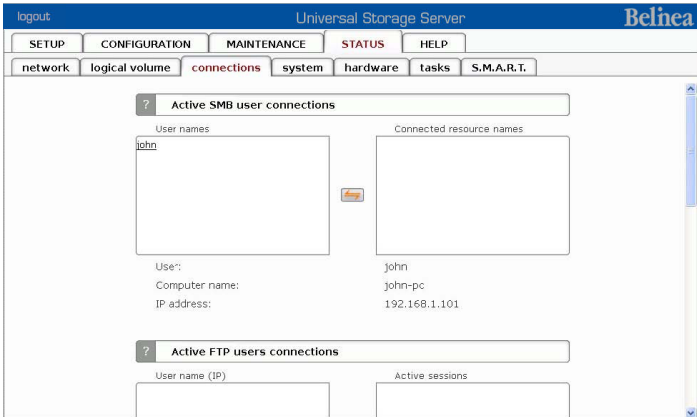
Total snapshots
Number of snapshots assigned to the share volume.

Snapshots active
Number of active snapshots.



Connections

This function displays all active user connections.



System

Function: Services

Here you can view services statistics.

Service
Service name.

State
State of the service, can be On or Off.

Status
Describes if the service is currently running (Active) or not running (Inactive).

After clicking the details button next to the service name, the following information on the selected service will be displayed:

Name
Name of the process that belongs to the service.

Description
Information on the process.

Count
Count of processes.

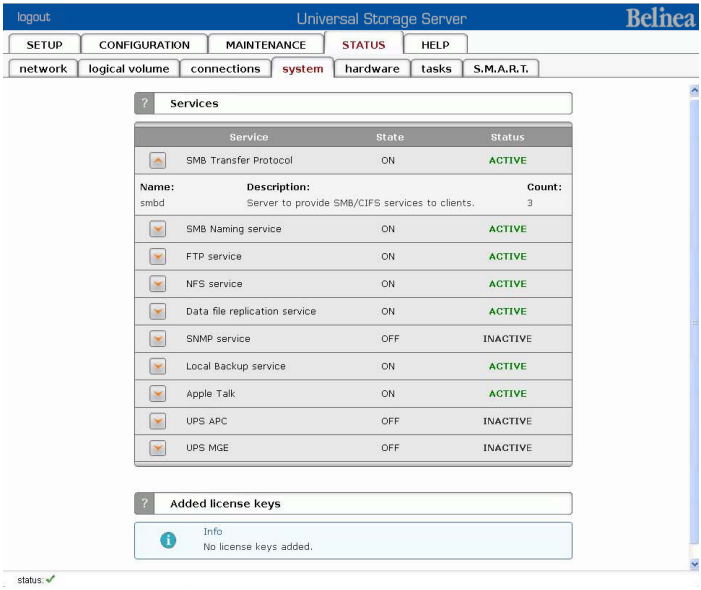
Function: Added license keys

Here you can view any added license keys.

Key
License key.

Type
Type of license key, can be: storage limit or MRCP.

Amount
Detailed amount for license key type.



Hardware

The "Hardware" option provides information on the UPS, network controllers and drivers (e.g. network driver).

In addition, you can also download the latest b.center log files or view specified or all log files in condensed form without downloading. You can also check the memory (RAM) and (SWAP) usage as well as the hardware monitoring.

Function: UPS status

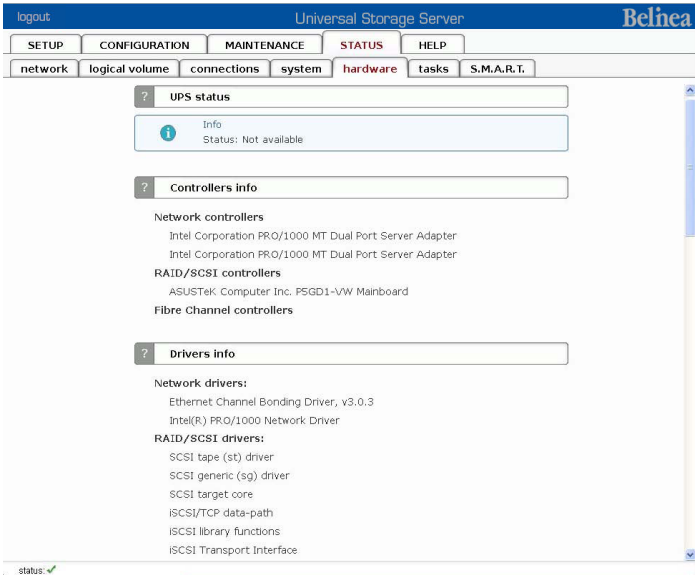
The UPS status presents the current status of the UPS device.

Function: Controllers info

This table lists the components installed in your server.

Function: Drivers info

This table presents the drivers loaded for hardware detected during boot-up process.



Function: Logs

This function lets you download or remove the logs gathered during server operation. In the logs all system information, which may be needed for troubleshooting in case of problems, can be found.

✎ *Note*

Recovery information of the logical volume manager is also stored in the logs. It is recommended to download logs after creating the logical volumes and store them in a save place as source for logical volume and volume groups recovery in case of a critical hardware failure.

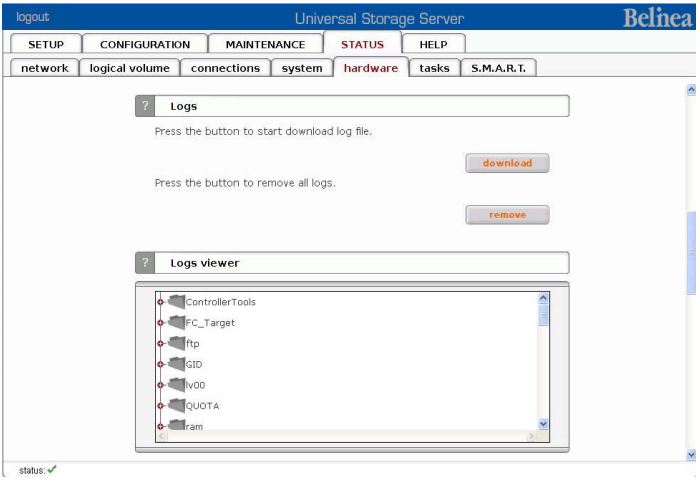
✎ *Note*

While generating the logs, a simple speed test is performed on the disks. If software RAID is used with many single disks, this may take up to several minutes.

Function: Logs viewer

This function allows you to view a specified log file in condensed form without downloading all log files.

To view a log file simply click on the name of that file. Depending on your web browser, you may be asked to choose the appropriate program to view the log file.
To change folders simply click on the name.

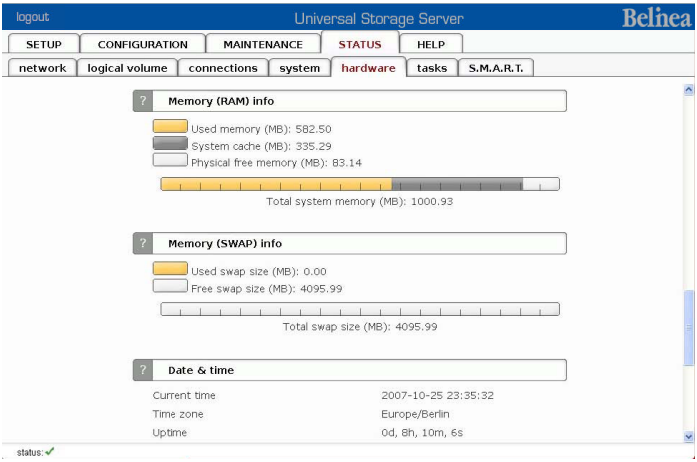


Function: Memory (RAM) info

This function displays the current memory usage.

✏ *Note*

Memory allocated to the system cache will be freed as soon as any application requires additional memory. If most of the memory is in use you can enable swapping or install additional memory modules to ensure system operation.



Function: Memory (SWAP) info

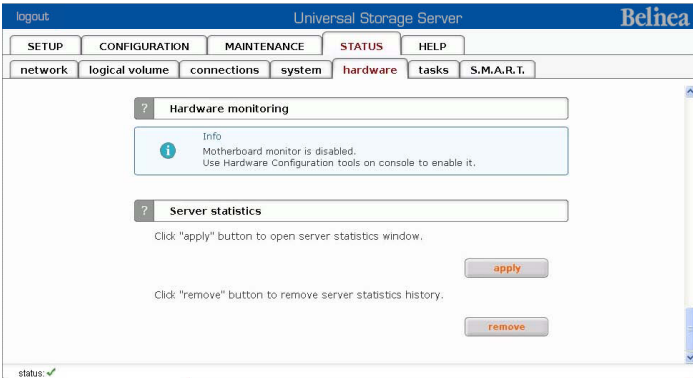
The memory (SWAP) info displays the current swap usage.

Note

Swapping is used to store memory areas on hard drives instead of RAM (Random Access Memory). The operating system moves a memory area to swap when this area has not been in use for a certain time and additional memory needs to be allocated.

Function: Date & time

This function displays the current date and time of your server.



Tasks

Here you can view statistical information on tasks like backup, data replication, volume replication, antivirus and snapshots.

Function: Running tasks

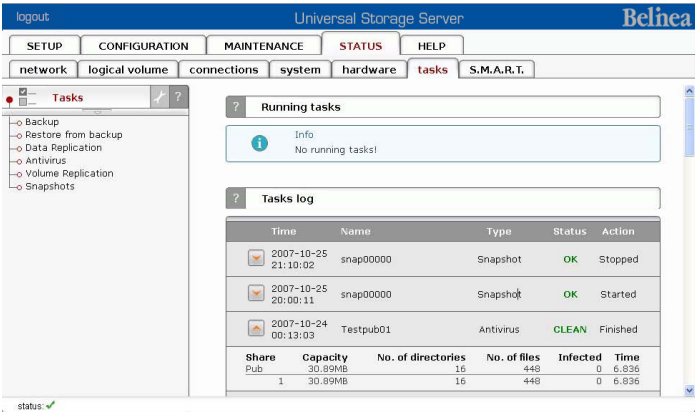
This function displays information on all currently running tasks.
You can see here all tasks related to:

- Backup,
- Data replication,
- Volume replication,
- Antivirus,
- Snapshots.

Each running task is described by:

- Name,
- Type,
- Start time,
- Details.

In order to see details of a running task click the "Show details" button.
More info about details can be found by clicking the task type in the Tasks tree and clicking help in the Running tasks function.



Function: Tasks log

This function displays logs for tasks of all types.
Each task log is described by:

Time
Time of task start.

Name
Name of the task.

Type
Type of task. Type can be one of following:

- Backup,
- Data replication,
- Volume replication,
- Antivirus,
- Snapshots.

Status
If the action was successful, the status will be OK; otherwise it will be FAILED.

Action
One of the following states:

- Started,
- Stopped,
- Finished.

Details
Task log details.

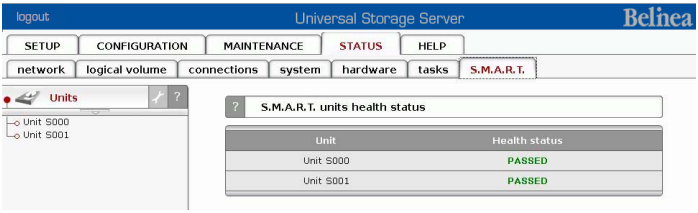
In order to view details of the task log click the "Show details" button.

More info about Task log details can be found by clicking the task type in the Tasks tree and clicking help in the Tasks log function.

S.M.A.R.T.

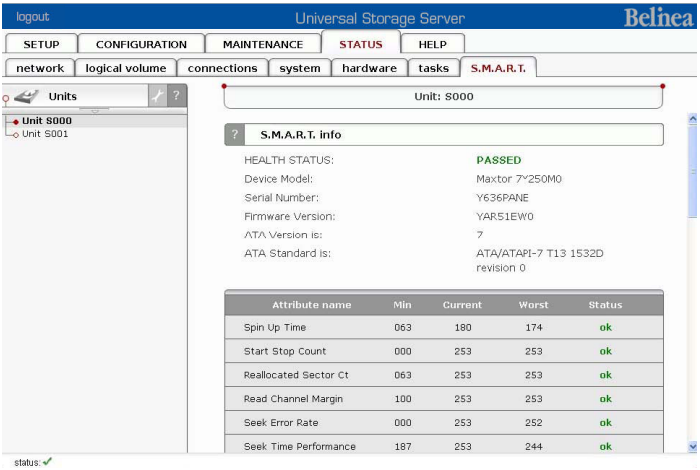
Through the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system, modern hard disk drives incorporate a suite of advanced diagnostics that monitor the internal operations of a drive and provide an early warning for many types of potential problems. If a potential problem is detected, the drive can be repaired or replaced before any data gets lost or damaged.

Here you can find a tree with the hard drives for which you can view S.M.A.R.T. information.
You can view information on a single hard drive or a summary for all drives in the system.
To view S.M.A.R.T. information for a hard drive, please click the appropriate drive name.
To view a summary please click "all units".



Function: S.M.A.R.T. units health status

This function allows you to check the S.M.A.R.T. status of a hard disk.
S.M.A.R.T. is a monitoring system for computer hard disks to detect and report on various indicators of reliability, in the hope of anticipating failures.
S.M.A.R.T. checks have to be enabled in the Functionality options of the Hardware Configuration tool on the console (press F1 on the console to find out keyboard shortcuts).



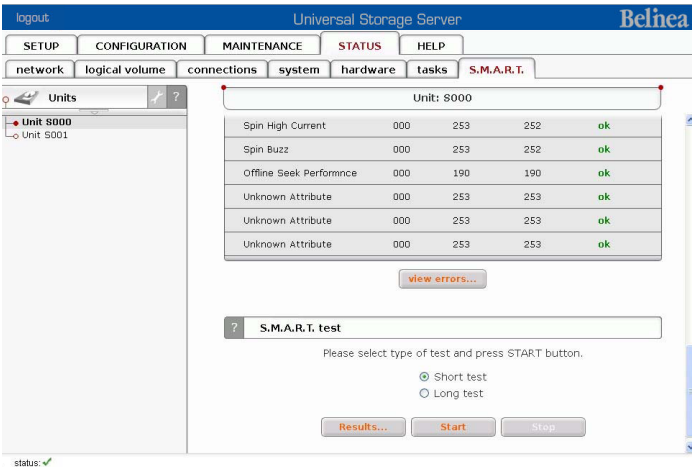
Function: S.M.A.R.T. info

This function allows you to view the S.M.A.R.T. parameters provided by this disk.
In the upper part of this function you can see basic parameters of the hard drive such as device model or serial number. Below there is a table with S.M.A.R.T. attributes. In the first column you will find an attribute name, in the second column the minimum threshold value of this parameter, then the current value, next the worst value and finally the status.

✎ *Note*

If a value has exceeded the "Worst" value for this attribute the status will be "failed".
If a value is on the edge of the "Worst" value for this attribute the status may be "pre-failed".
On certain hard drives, some attributes may be displayed as "Unknown_Attribute".This may happen if the manufacturer of the hard drive has made modifications in S.M.A.R.T. and these changes are not yet supported by our software.

The "view errors" button enables you to view the S.M.A.R.T. log of that drive, which is generated automatically.



Function: S.M.A.R.T. test

This function allows you to perform a short or long test of a hard drive.
You will be informed about the progress of the test.
After the test has finished, please click the "results" button to view the test log.
Performing a test is not recommended during normal (everyday) usage of a hard drive.

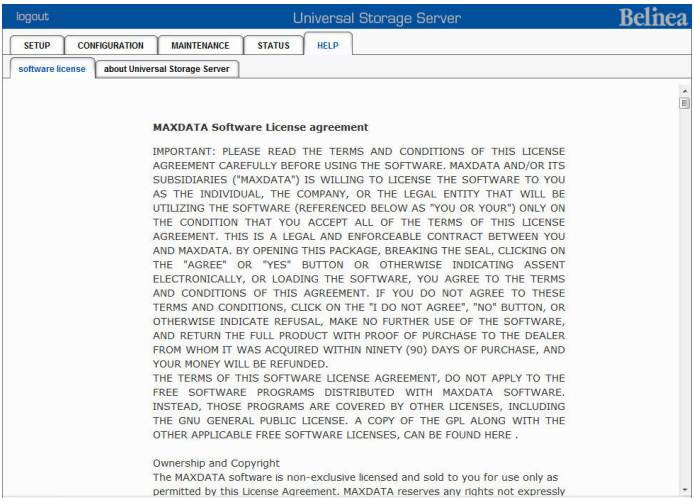
✎ *Note*

On some motherboards and controllers S.M.A.R.T. tests may not work.

HELP

Software License

Click on “Help” > “software license” to view the license for your b.center software.


logout
Universal Storage Server
Belinea
SETUP
CONFIGURATION
MAINTENANCE
STATUS
HELP
software license
about Universal Storage Server
MAXDATA Software License agreement
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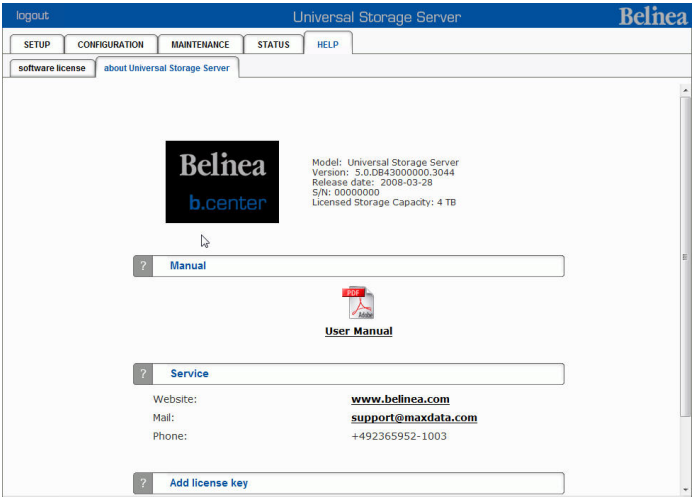
About Belinea b.center



Function: Register
Here you can find a link to our registration form. Note that registration is required to receive updates and new versions. As a registerd user, you can also receive e-mail notifications about software news.

Function: Manual
You can download the manual here and print it for your reference.

✎ *Note*
In order to read the manual, you need a PDF viewer such as Adobe Reader, which can be downloaded from http://www.adobe.com.

Function: Service
Please have the following information available before contacting our Technical Support team:

- Logs which you can download from "Status" > "Hardware" > "Logs".
- Your software version which can be found under "Help" > "About".

Function: Add license key
Here you can enter a license key to upgrade the functionality of your server. For example you can add a license key for more storage capacity.

To log out from the management interface, simply close the web browser window.

Troubleshooting

Here is a list of common error messages and their meanings as well as corresponding tips on how to resolve the underlying problem. If your error message is not listed here, please contact our support and service team (see section "Help" above). Our staff will help you to find a solution.

Error: user already exists

There cannot be more than one user with the same name. You cannot create a user twice. Check your spelling. Remember that user names are not case-sensitive. You can check existing user names by expanding the tree diagram on the left.

Error: values are not valid

You have entered an invalid parameter. IP addresses have the form aaa.bbb.ccc.ddd: All four parameters range between 0 and 255 and are always separated by periods.

Error: resource already exists

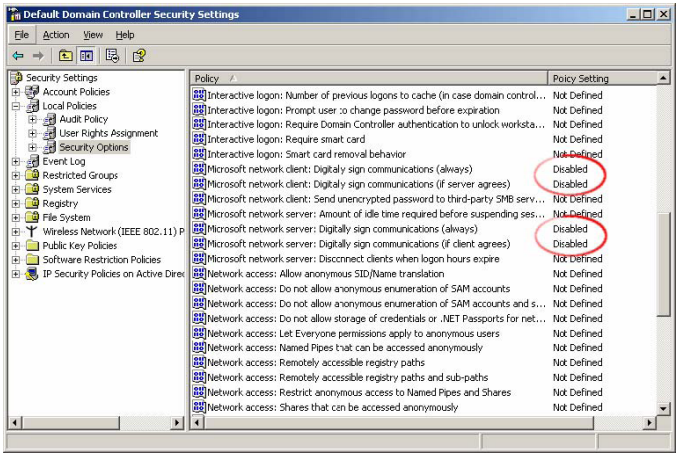
You cannot create more than one resource with the same name. You cannot create a resource twice. Check your spelling. Remember that resource names are not case-sensitive. You can check existing resource names by expanding the tree diagram to the left.

Error: passwords do not match

Make sure that you type the same password in each entry field. For safety reasons, the passwords are not displayed. Type slowly. Check the status of the Shift, Caps Lock, Control, and Alt keys.

Error: Belinea b.center cannot import the user database from a Windows Server 2003 domain.

In this case the following setting in the local security guideline may solve the problem:


Default Domain Controller Security Settings
File Action View Help
Security Settings
Account Policies
Local Policies
Audit Policy
User Rights Assignment
Security Options
Event Log
Restricted Groups
System Services
Registry
File System
Wireless Network (IEEE 802.11) P
Public Key Policies
Software Restriction Policies
IP Security Policies on Active Direc
Policy
Policy Setting
Interactive logon: Number of previous logons to cache (in case domain control... Not Defined
Interactive logon: Prompt user to change password before expiration Not Defined
Interactive logon: Require Domain Controller authentication to unlock worksta... Not Defined
Interactive logon: Require smart card Not Defined
Interactive logon: Smart card removal behavior Not Defined
Microsoft network client: Digitally sign communications (always) Disabled
Microsoft network client: Digitally sign communications (if server agrees) Disabled
Microsoft network client: Send unencrypted password to third-party SMB serv... Not Defined
Microsoft network server: Amount of idle time required before suspending ses... Not Defined
Microsoft network server: Digitally sign communications (always) Disabled
Microsoft network server: Digitally sign communications (if client agrees) Disabled
Microsoft network server: Disconnect clients when logon hours expire Not Defined
Network access: Allow anonymous SID/Name translation Not Defined
Network access: Do not allow anonymous enumeration of SAM accounts Not Defined
Network access: Do not allow anonymous enumeration of SAM accounts and s... Not Defined
Network access: Do not allow storage of credentials or .NET Passports for net... Not Defined
Network access: Let Everyone permissions apply to anonymous users Not Defined
Network access: Named Pipes that can be accessed anonymously Not Defined
Network access: Remotely accessible registry paths Not Defined
Network access: Remotely accessible registry paths and sub-paths Not Defined
Network access: Restrict anonymous access to Named Pipes and Shares Not Defined
Network access: Shares that can be accessed anonymously Not Defined

Error: Update file not found

You instructed the b.center software to perform a system update but did not supply a valid update file. Download the latest update file from the www.belinea.com website. Then copy the upgrade file into your "update" folder (the folder name should be written in lower case). Finally select "update" from the menu.

Error: No share volume

You must create a volume for file sharing before you can create any resource shares or search for shares. Check the "Getting Started" section of this manual for instructions on creating a share volume.

Error: No share volume to browse

You must create a volume for file sharing before you can browse it in order to create resource shares.

Error: Invalid user name!

User name cannot:
(1) Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ' " . , % | < > ? / \ = `
(2) Begin or end with a space

The use of the SMB (Server Message Block) protocol from Windows, also known as CIFS or Samba, places some restrictions on the use of special characters. These restrictions have historical reasons, but are still binding today. User names must not contain any of the above mentioned characters.

Error: invalid user password

A user password cannot begin or end with a space.
Spaces are not legitimate characters at the beginning and end of a password. Maybe you inadvertently hit the space bar when entering the password. Please reenter your password.

Error: invalid administrator password

An administrator password cannot begin or end with a space.
Spaces are not legitimate characters at the beginning and end of a password. Maybe you inadvertently hit the space bar when entering the password. Reenter your password.

Error: invalid resource name

Resource name cannot:
(1) Contain the following characters: * : " | < > ? / \ ` # $ & ( ) + ; ' .
(2) Begin or end with a space

The use of the SMB (Server Message Block) protocol from Windows, also known as CIFS or Samba, lays some restrictions on the use of special characters. These restrictions have historical reasons, but are still binding today. Resource names cannot contain any of the above mentioned characters. Note that the list of invalid characters is slightly different from that for other name fields.

Error: invalid workgroup name
Workgroup name cannot:
(1) Contain the following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ‘ " . , % | < > ? / \ = `
(2) Begin or end with a space.

The use of the SMB (Server Message Block) protocol from Windows, also known as CIFS or Samba, lays some restrictions on the use of special characters. These restrictions have historical reasons, but are still binding today. Workgroup names cannot contain any of the characters listed above.

✏ *Note*
The invalid characters for workgroup names are different from the ones for other fields.

Error: invalid server name
Server name cannot contain:
(1) The following characters: ~ ! @ # $ ^ & ( ) + [ ] { } * ; : ‘ " . , % | < > ? / \ = `
(2) Spaces
(3) Digits only.

The use of the SMB (Server Message Block) protocol from Windows, also known as CIFS or Samba, lays some restrictions on the use of special characters. These restrictions have historical reasons, but are still binding today. Server names cannot contain any of the above mentioned characters. Note that the list of invalid characters is slightly different from that for other name fields. In addition, server names cannot consist of numbers only, they must contain alpha characters.

Error: invalid resource comment
A resource comment cannot be longer than 256 characters.
Resource comments have a limit of 256 characters, a limit which cannot be exceeded. Use a shorter comment.

Error: invalid directory name
Directory name cannot:
(1) Contain the following characters: * : " | < > ? / \ ` # $ & ( ) + ; ‘ .
(2) Begin or end with a space.

The internal operating system of your Belinea b.center does not allow certain characters to be used for directories. The above mentioned characters are invalid, just as trailing or leading spaces. Choose a different name.

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Version 2, June 1991

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